

Frost/Freeze Tolerance Performance for Common Plants With and Without FreezePruf

Plants	Plant Group #s	Plant Type	Habit	Hardiness Zones	Without FreezePruf		Plant Parts Affected by Frost	With FreezePruf	
					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Aloe	1	Herb	Perennial	10-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Apple		Fruit Tree	Perennial	3-10					
Arborvitae	2	Evergreen	Perennial	5-9			New Foliage	1/3 to 1/2 Zone equivalent added to hardiness rating	
Arborvitae -'Nigra' Dark American	2	Evergreen	Perennial	3-9			New Foliage	1/3 to 1/2 Zone equivalent added to hardiness rating	
Arborvitae-Emerald Green	2	Evergreen	Perennial	5-9			New Foliage	1/3 to 1/2 Zone equivalent added to hardiness rating	
Artichoke	1	Vegetable	Perennial	8-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Ash	1	Deciduous Trees	Perennial	2-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	New foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Asparagus	1	Vegetable	Perennial	4-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Awabuki Viburnum	2	Shrub	Perennial	2-9	1-2 Hrs @ 23-25F	1-2 Hrs at or below 19-21F		1-2 Hrs @ 19-20F	1-2 Hrs @ 15-17F
Azalea	1	Shrub-Evergreens	Perennial	3-9	1-2 Hrs @ low 30s	60 min @ 32F	Flowers and new foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

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					Damage	Mortality		Damage	Mortality
Basil	1	Herb	Annual	10	Either Scenario: <ul style="list-style-type: none"> • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F 	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage	Minor damage at any of these approx scenarios: <ul style="list-style-type: none"> • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing 	Any of the following approx. scenarios: <ul style="list-style-type: none"> • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Banana	1	Fruit	Perennial	9-10	Either Scenario: <ul style="list-style-type: none"> • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F 	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: <ul style="list-style-type: none"> • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing 	Any of the following approx. scenarios: <ul style="list-style-type: none"> • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Beans	1	Vegetable	Annual		Either Scenario: <ul style="list-style-type: none"> • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F 	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: <ul style="list-style-type: none"> • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing 	Any of the following approx. scenarios: <ul style="list-style-type: none"> • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Beech	1	Deciduous Trees	Perennial	5-8	Either Scenario: <ul style="list-style-type: none"> • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F 	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage	Minor damage at any of these approx scenarios: <ul style="list-style-type: none"> • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing 	Any of the following approx. scenarios: <ul style="list-style-type: none"> • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Beets	1	Vegetable	Annual	2a-11	Either Scenario: <ul style="list-style-type: none"> • 1 to 2 h at 28-30F • several hours 30-32F 	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage	Minor damage at any of these approx scenarios: <ul style="list-style-type: none"> • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing 	Any of the following approx. scenarios: <ul style="list-style-type: none"> • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Birch	1	Deciduous Trees	Perennial	2-7	Either Scenario: <ul style="list-style-type: none"> • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F 	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage	Minor damage at any of these approx scenarios: <ul style="list-style-type: none"> • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing 	Any of the following approx. scenarios: <ul style="list-style-type: none"> • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Blackberry	1	Fruit	Perennial	4-9	Either Scenario: <ul style="list-style-type: none"> • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F 	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: <ul style="list-style-type: none"> • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing 	Any of the following approx. scenarios: <ul style="list-style-type: none"> • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

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					Damage	Mortality		Damage	Mortality
Blueberry	1	Fruit	Perennial	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Broccoli	1	Vegetable	Annual	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Brussels Sprouts	1	Vegetable	Annual	2a-9a	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Cabbage	1	Vegetable	Annual	1-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Cabbage Palmetto	2	Palm Tree	Perennial	9-11	1-2 Hrs @ 12-14F	1-2 Hrs at or below 7-8F		1-2 Hrs @ 8-10F	1-2 Hrs @ 1-3F*
Camellia	1	Flowering plant	Perennial	6-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Flowers	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Canna	1	Flowering plant	Perennial	8-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage & Flowers	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Cantaloupe	1	Fruit	Annual	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

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					Damage	Mortality		Damage	Mortality
Carrots	1	Vegetable	Annual	1-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Cauliflower	1	Vegetable	Annual	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Cedar	1	Deciduous Trees	Perennial	6-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	New foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Celery	1	Vegetable	Annual	5-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Chamomile	1	Herb	varies on type	4-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Chayote	1	Fruit	Perennial	8-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Cherry	1	Fruit Tree	Perennial	3-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage & flowers	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

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					Damage	Mortality		Damage	Mortality
Chestnut	1	Deciduous Trees	Perennial	4-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Chives	1	Herb	Perennial	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Cilantro	1	Herb	Annual	8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Coleus	1	Plant	Perennial	10-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Flower & Foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Colocasia	1	Flowering plant	Perennial	7-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Columbines	2	Flowering plant	Perennial	3-9	1-2 Hrs @ low-mid 20s	1-2 Hrs at or below upper teens		1-2 Hrs @ upper teens	1-2 Hrs @ low teens
Crape Myrtles	1	Shrub-Flowering	Perennial	6-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage & flowers	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Cucumber	1	Vegetable	Annual	4-12	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

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					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Dill	1	Herb	Annual	3-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Dogwood	1	Deciduous Trees	Perennial	3-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Eggplant	1	Vegetable	Annual	9-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Endive	1	Vegetable	Annual	4-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Eucalyptus	1	Herb	Perennial	8-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue		Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Evergreens	2	Evergreen	Perennial	2-9			new foliage	1/3 to 1/2 Zone equivalent added to hardiness rating	
Fennel	1	Vegetable	Perennial	4-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Ferns-Tropical	1	Plant	Perennial	8-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Flower & Foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

Plants	Plant Group #s	Plant Type	Habit	Hardiness Zones	Without FreezePruf		Plant Parts Affected by Frost	With FreezePruf	
					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Fig	1	Fruit Tree	Perennial	7-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage & fruits	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Garlic	1	Vegetable	Annual	4-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Grape	1	Fruit	Perennial	4-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Hemlock- Canadian	2	Evergreen	Perennial	3-8			New Foliage	1/3 to 1/2 Zone equivalent added to hardiness rating	
Hardy Herbaceous Perennials	2	Flowering plant	Perennial		1-2 Hrs @ low-mid 20s	1-2 Hrs at or below upper teens		1-2 Hrs @ upper teens	1-2 Hrs @ low teens
Hibiscus	1	Flowering plant	varies on type	6-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Flower & Foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Hickory	1	Deciduous Trees	Perennial	5-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Hydrangea-Endless Summer	2	Flowering plant	Perennial	4-9	1-2 Hrs @ mid-upper 20s	1-2 Hrs at or below low 20s	foliage & flowers	1-2 Hrs @ low 20s	1-2 Hrs @ upper teens
Italian Parsley	1	Herb	Biennial	9	1-2 Hrs @ upper 20sF	1-2 Hrs at or below mid-20sF	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

Plants	Plant Group #s	Plant Type	Habit	Hardiness Zones	Without FreezePruf		Plant Parts Affected by Frost	With FreezePruf	
					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Lantana	1	Shrub-Flowering	Annual	9-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Flower & Foliage	Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Lantana	2	Shrub-Flowering	Perennial	9-11	1-2 Hrs @ low 30s	30 min @32F	Flower & Foliage	1-2 Hrs @ 27-28F	1-2 Hrs @ 25F
Lavender	1	Herb	Perennial	5-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Leeks	1	Vegetable	Annual	8-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Lettuce	1	Vegetable	Annual	6-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Lime	1	Fruit Tree	Perennial	10-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue		Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Loquat	2	Fruit Tree	Perennial	7-11	1-2 Hrs @19-21F	1-2 Hrs at or below 14-15F	foliage & fruit	1-2 Hrs @ 15-17F	1-2 Hrs @ 10-12F*
Magnolia, Southern		Flowering plant	Perennial	6-10	generally a few hours near 0 F	any temps below 0 F	foliage	Few Hrs at -5 to 0 F	Few Hrs at -10 to -5 F
Mandevilla	1	Flowering plant	Perennial	10-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Flower & Foliage	Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

Plants	Plant Group #s	Plant Type	Habit	Hardiness Zones	Without FreezePruf		Plant Parts Affected by Frost	With FreezePruf	
					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Maple	1	Deciduous Trees	Perennial	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Melon	1	Fruit	Annual	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Meyer Lemon	2	Fruit Tree	Perennial	9-11	1-2 Hrs @ 26-27F	1-2 Hrs at or below 20-22F	Flowers	1-2 Hrs @ 23-25F	1-2 Hrs @ 17-19F
Mints	1	Herb	Perennial	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Mushrooms		Fungi	Perennial	7-10					
Nectarine		Fruit Tree	Perennial	5-8			Foliage, Flowers & Fruit		
Oak	1	Deciduous Trees	Perennial	3-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Okra	1	Vegetable	Annual	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Oleander	2	Flowering plant	Perennial	9-11	1-2 Hrs @ 20-22F	1-2 Hrs at or below 16-18F	foliage & flowers	1-2 Hrs @ 17-18F	1-2 Hrs @ 12-4F*
Onion	1	Vegetable	Annual	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

Plants	Plant Group #s	Plant Type	Habit	Hardiness Zones	Without FreezePruf		Plant Parts Affected by Frost	With FreezePruf	
					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Orange, Navel	1	Fruit Tree	Perennial	8-11	1-2 Hrs @ upper 20s	1-2 Hrs at or below mid-20s	Foliage, Flowers & Fruit	1-2 Hrs @ mid-20s	1-2 Hrs @ low20s
Orange -Satsuma Mandarin	2	Fruit Tree	Perennial	8-11	1-2 Hrs @ 22-24F	1-2 Hrs at or below 16-18F	Foliage, Flowers & Fruit	1-2 Hrs @ 18-20F	1-2 Hrs @ 12-14F
Oregano	1	Herb	Perennial	5-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue		Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Palm -Canary Island Date	2	Palm Tree	Perennial	9-11	1-2 Hrs @ 23-25F	1-2 Hrs at or below 20-22F	foliage	1-2 Hrs @ 20-22F	16-18F
Palm -Mexican Fan	2	Palm Tree	Perennial	9-11	1-2 Hrs @ 23-25F	1-2 Hrs at or below 20-22F	foliage	1-2 Hrs @ 20-22F	15-17F
Palm –Pindo	2	Palm Tree	Perennial	8-11	1-2 Hrs @ 15-17F	1-2 Hrs at or below 10-12F	foliage	1-2 Hrs @ 11-13F*	1-2 Hrs @ 6-8F*
Palm-Sago	2	Palm Tree	Perennial	8-11	1-2 Hrs @ 22-23F	1-2 Hrs at or below 19-20F	foliage	1-2 Hrs @ 20-22F	1-2 Hrs @ 15-17F
Palm-Windmill	3	Palm Tree	Perennial	7b-11	1-2 Hrs @ 10-12F	1-2 Hrs at or below 5-7F	foliage	1-2 Hrs @ 5-7F	1-2 Hrs @ 0-2F
Peace Lilly	1	Flowering plant	Perennial	10b-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Flower & Foliage	1-2 Hrs @ 27-28	1-2 Hrs @ 23
Peach		Fruit Tree	Perennial	5-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage,flowers, and fruit	Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing
Pear	1	Fruit Tree	Perennial	3-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue		Minor damage at any of of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

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					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Peas		Vegetable	Annual	3-9	1-2 Hrs @ upper20s	1-2 Hrs at or below mid20s	Foliage, Flowers & Fruit	mid20s	low 20s
Peppers	1	Vegetable	Annual	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Philodendron	1	Shrub	Perennial	10-11	1-2 Hrs @ 26-27F	1-2 Hrs at or below 22-23F	foliage	1-2 Hrs @ 22-23F	1-2 Hrs @ 17-19F
Pine -Austrian	2	Evergreen	Perennial	2-9			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Pine-Bosnian	2	Evergreen	Perennial	2-9			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Pine -Eastern White	2	Evergreen	Perennial	2-9			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Pine-Ponderosa	2	Evergreen	Perennial	2-9			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Pine -Scotch	2	Evergreen	Perennial	2-9			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Plum		Fruit Tree	Perennial	2-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage, flowers, and fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Potatoes	1	Vegetable	Annual	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Pumpkin	1	Vegetable	Annual	4-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

Plants	Plant Group #s	Plant Type	Habit	Hardiness Zones	Without FreezePruf		Plant Parts Affected by Frost	With FreezePruf	
					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Radish	1	Vegetable	Annual	3-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Raspberry	1	Fruit	Perennial	4-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Rose (Knock-Out)	2	Flowering plant	Perennial	3-10	1-2 Hrs @ low-mid 20s	1-2 Hrs at or below upper teens	Foliage, Flowers & Fruit	1-2 Hrs @ upper teens	1-2 Hrs @ low teens
Rosemary	1	Herb	Perennial	6-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Rutabaga	1	Vegetable	Annual	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Sage	1	Herb	Annual	4-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Shallot	1	Vegetable	Annual	4-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Snapdragons	2	Flowering plant	Annual	5-7	1-2 Hrs @ mid20s	1-2 Hrs at or below low 20s	foliage and flowers	1-2 Hrs @ upper teens	1-2 Hrs @ mid teens
Spinach	1	Vegetable	Annual	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

Plants	Plant Group #s	Plant Type	Habit	Hardiness Zones	Without FreezePruf		Plant Parts Affected by Frost	With FreezePruf	
					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Spruce -Blue	2	Evergreen	Perennial	2-8			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Spruce -Colorado	2	Evergreen	Perennial	2-8			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Spruce -'Densata' Black Hills	2	Evergreen	Perennial	2-8			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Spruce -Norway	2	Evergreen	Perennial	2-8			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Spruce -Serbian	2	Evergreen	Perennial	2-8			Frost Sensitive Leaves	1/3 to 1/2 Zone equivalent added to hardiness rating	
Squash	1	Vegetable	Annual	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Strawberry	1	Fruit	Annual	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Sweet Corn	1	Vegetable	Annual	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Sweet Potato	1	flowering plant	Annual	7-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Swiss Chard	1	Vegetable	Annual	5-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F

Plants	Plant Group #s	Plant Type	Habit	Hardiness Zones	Without FreezePruf		Plant Parts Affected by Frost	With FreezePruf	
					Approx. Temperatures for Damage + Mortality			Approx. Temperatures for Damage + Mortality	
					Damage	Mortality		Damage	Mortality
Syngonium	1	Plant	Perennial	10-11	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Flower & Foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Thyme	1	Herb	Perennial	4-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Tomato	1	Vegetable	Annual	3-10	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Turnip	1	Vegetable	Biennial	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Walnut		Deciduous Trees	Perennial	4-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	new foliage	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
Watermelon	1	Fruit	Annual	3-9	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	Foliage, Flowers & Fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F
White Radish (Daikon)	1	Vegetable	Annual	3-8	Either Scenario: • 1 to 2 h at 33 -35 F if frost forms • a few minutes at 32F	20-30 Min @ 32 F or any exposure of 30 F or below = Complete leaf mortality, most stem + flower tissue	foliage, flower, and fruit	Minor damage at any of these approx scenarios: • Typical 1st or Last Frost: 4-6(7) Hrs @ 30-32 F • Typical 1st or Last Hard Freeze: 2 to 3 Hrs@30-32 F+1Hr @ 28-29 F • 1 h at @ 25 - 27F and 2 h total below freezing	Any of the following approx. scenarios: • below 30 to 32 F for more than 7 to 8 h • more than 3 to 4 hours total below 32 F, with more than 1 h between 28 and 30F, • more than 3 hr below 32F, with minimum temp below about 25F