

Healthy Tomato Vines

Diseases are starting to appear on tomato vines in North Dakota. Now is the time to take action!

The most common diseases are Septoria leaf spot (*Septoria*) and early blight (*Alternaria*). Septoria appears as tiny, 1/8-inch-diameter brown spots with dark borders (lower left photo). Early blight lesions may become 1/2 inch or larger, with concentric rings and surrounded by yellow blotches (lower right photo). Here is how to protect your vines:

Water the roots, not the leaves.

Diseases need water on the leaves for infection. Avoid overhead watering. A soaker hose is ideal. Irrigate in the morning so any water that gets on the foliage can dry before nightfall.

Avoid splashing the soil and its infected debris onto the leaves. Avoid working in the garden (and spreading the disease) when vines are wet.

Stake and prune vines. Staking and pruning will increase air flow and help vines dry out. You may remove up to one-third of leaves at the base to increase air flow and prevent the infection of leaves near the soil.

Remove severely infected leaves. Focus on the older and lower leaves, where these diseases will start.

Apply mulch around the vines. Straw, black plastic or landscape fabric can reduce soil splashing. Lawn clippings can be used if they have not been treated with an herbicide.



Protect tomato vines from Septoria leaf spot (left) and early blight (right) diseases.

Apply protective fungicides.

Chlorothalonil (Daconil, Bravo), mancozeb (Dithane), maneb and copper-based products are often used. Spray a few days before rains are expected so the chemical is absorbed and can act as a shield. Spray every 7–14 days if needed.

Keep in mind it is unreasonable to expect disease-free vines, but we can slow the spread of diseases and maximize yields until frost.

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Summer Blizzard

Imagine a shrub covered in snow—in summer!

Maybe not snow, but snowy white flowers. I saw it at the International Peace Garden a few weeks ago. It was spectacular! I walked over to give the tall shrubs a closer look. The arching branches were covered with pure white, fragrant flowers.

This is sweet mockorange, one of the *most remarkable* shrubs in early summer, yet one of the *least remarkable* shrubs during the rest of the year.

It's never ugly, but mockorange doesn't stand out during much of the year. It has no fall color and its fruits are not showy. It is often used as a backdrop in perennial gardens.

Mockorange grows vigorously and is easy to care for. It tolerates alkaline and salty soils, and it tolerates drought once established. Mockorange rarely suffers from diseases or insect pests.

Among the most popular cultivars is 'Blizzard'. The six-foot shrub (shown) is blanketed with fragrant, single flowers throughout June. Developed in Alberta, it's hardy throughout North Dakota.

One of the most exciting introductions is First Editions® Snow White Sensation™. It blooms *twice*, first in late spring and then again in late summer! That's a double delight! It grows six feet tall, is hardy to Zone 4, and its foliage is dark green.

'Aurea' is best known for its golden foliage and compact habit. The four-foot shrub makes a nice hedge and is hardy to Zone 3/4.

The arching branches of 'Minnesota Snowflake' grow a bit taller, up to eight feet. Its blooms have double petals. The plant is hardy to Zone 4.



Photos courtesy of Bailey Nurseries, Inc.

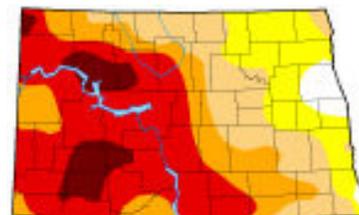
'Blizzard' and close-up of Snow White Sensation™ mockorange.

One key to caring for mockorange is to trim it when it starts to get leggy. Trim a quarter of the oldest branches down to the ground. Do this for a few more years and the shrub will be full again. Prune after the flowers have faded in July.

Sweet mockorange will enchant you in June and serve as a pleasing backdrop to your garden the rest of the year. Take advantage of newer cultivars that bloom longer, and keep your eyes open for more introductions of this classic garden shrub.

Drought Relief

One year can make a big difference. In July 2017, 94% of the state was dry and most gardeners faced a "severe" drought. This year, only 20% of the state is dry and no one is dealing with a severe drought. Let's hope rains come to help everyone as soon as possible.



July 11, 2017

-  Moderately dry (crop growth slowed); 94% of state in 2017, 20% today.
-  Moderate drought (crop damage, voluntary water use restrictions); 73% of state in 2017, 1% today.
-  Severe drought (crop losses likely, water use restrictions); 55% of state in 2017, 0% today.
-  Extreme drought (major crop losses, widespread water use restrictions); 36% of state in 2017, 0% today.
-  Exceptional drought (widespread crop losses, water emergencies); 0% of state in 2017, 0% today.



July 12, 2018

Plant Health Care

Trees and Shrubs



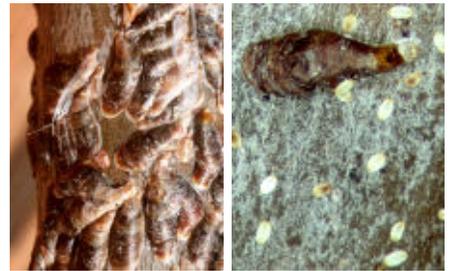
Japanese Beetle

Beetles are emerging. They are 1/2-inch long, metallic green with bronze wing covers. Note the white tufts along the side. Contact NDSU Extension or ND Dept. of Agriculture if you see one.



Herbicide Injury

Needles/leaves become curled, cupped, or elongated. Most woody plants survive from indirect exposure to drift. Severe exposure may cause death. New growth may be free of symptoms.



Oystershell Scale

Insects on branches suck sap, causing thin and dying branches. Crawlers are hatching (right). Spray with carbaryl, pyrethroids or summer oils. Suffocate with dormant oil in early spring.



Leaf Scorch

Sweltering temps cause leaves to scorch along edges. Newly planted trees are especially sensitive. Irrigate deeply. Rock mulches generate heat and should be avoided; wood mulches are superior.



Iron Chlorosis on Maple

Leaves turn yellow, but veins remain green. Iron is locked in soil and not available to roots. Associated with high pH. Fertilize foliage or use a root feeder to provide a fertilizer containing iron.



Dutch Elm Disease

A major branch shows yellowing and wilts. Take a one-inch-diameter sample and look for brown streaking in sapwood and beneath bark. Prompt removal of the tree is recommended.



Adelgid Galls on Spruce

Feeding by nymphs create pineapple-shaped galls that stunt and distort new growth. Infestations are typically light and damage is minor. Pick off galls, if feasible, before they turn brown and mature adelgids emerge to lay eggs.



Leaf Cutter Bees

Females cut circular pieces of leaves to build nesting cells for eggs. Roses are a favorite plant. This native bee is a valuable pollinator and not aggressive. Damage to plants is low. No control is recommended.



Rust on Rose

Orange, powdery pustules develop on leaves and stems. Prune out infected leaves and branches. Avoid getting foliage wet when irrigating. Fungicides (triforine, sulfur) may be applied every 10 days to prevent spread.

Plant Health Care

Vegetables



Herbicide Injury

Pesticide drift or exposure to pesticide-contaminated manure may cause extreme curling of foliage. Plants will be stunted and vegetables may be contaminated.



Prevent Blossom End Rot

Irrigate regularly. Mulch to maintain consistent soil moisture. Calcium sprays might help. Mix 4 TBSP calcium nitrate per gallon of water. Spray fruits 2–3 times weekly when they are dime-sized.



Leaf Spot on Cucumber

Angular leaf spot and anthracnose are active now. Removed badly infected foliage. Avoid overhead watering and working in the garden when it is wet. Copper sprays may prevent spread.



Cucumber Beetle

Striped and spotted beetles feed on cucumber and muskmelon, spreading a bacterium that causes wilting. Control with pyrethrin, neem, permethrin, bifenthrin or carbaryl. Spray in early evening to avoid killing honeybees.



Squash Vine Borer

Wasp-like, 1/2-inch adults lay eggs in the base of squash/pumpkin vines. Set out traps of yellow bowls with soapy water. Inspect vines for punctures. If found, spray the base of vines with pyrethroids or carbaryl. Repeat 7–10 days later.



Tomato Flower Drop

Blossoms fail to set fruit under extreme temps, drying winds or drought. A series of day temps above 85°F or night temps above 70°F can cause drop. Bean and cuke blossoms are less sensitive; pepper blossoms are more sensitive.



Harvesting Rhubarb

Stop harvesting in early July. Allow the plant to replenish its crown for next year. A few stalks can be harvested this summer if needed. These stalks will be less tender but still edible.



Harvesting Asparagus

Stop harvesting in July when 75% of spears become thinner than a pencil. The remaining spears will turn into ferns that provide energy for next year's crop.



Harvesting Squash Blossoms

Clip young, opening blooms in morning. Harvesting male blooms (those without baby fruits attached) will not reduce yields. Often stuffed with cheese, then either baked or battered and fried.

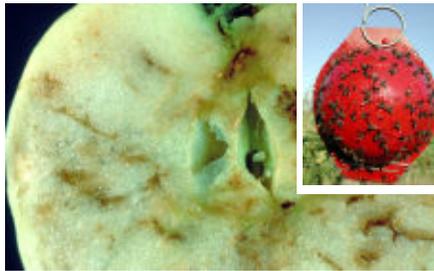
Plant Health Care

Fruits



Spotted Wing Drosophila

White maggots may be seen in berries and cherries. Set out traps with apple vinegar in shade to monitor for the tiny flies. Control with pyrethroids, malathion or spinosad. Keep orchard clean.



Apple Maggot

Flies are laying eggs now. Trapping is recommended to monitor for the flies. If found, spray at 2–3 week intervals using malathion, carbaryl or a pyrethroid.



Cedar-Apple Rust

Orange lesions appear on Juneberry and apple leaves. Prune in March to improve air flow. Apply protective sprays of fungicide next spring when blooms show first hint of color.



Midge Gall on Grape

Blisters on leaves and stems are shelters for eggs laid by midge flies. Orange larva will emerge. The pest is harmless. No sprays are needed.



Plum Pockets

Unripe fruits become large, hollow and spongy. Remove infected fruits before spores emerge. Prevent by using sprays of copper, lime sulfur or chlorothalonil before bud break in spring.



Plum Spindle Gall

Eriophyid mites fed on the leaves in spring, causing a reaction that led to unusual columns forming. Damage is cosmetic and no pesticides are needed.

Lawns



Anthills

Ants do not harm the lawn, but their presence indicates the lawn is thin. Thicken the lawn and ants will move away. Seed and fertilize the lawn now or in autumn (late August/September).



Mushrooms

Mushrooms are decomposing organic matter (typically tree roots, stump or lumber). It's natural and may continue for years. Leave mushrooms alone or rake. Do not eat. No spray is useful.



Slime Mold

Spores from thatch splash onto grass blades. Thrives in cool, humid weather. A jet spray of water dislodges the mold and it will break down in dry weather. Raking helps. No chemicals needed.

Weather Almanac for July 9–July 15, 2018

Site	TEMPERATURE ¹				RAINFALL ^{1,4}				GROWING DEGREE DAYS ^{1,5}			
	July 9–15				July 9–15		2018		July 9–15		2018	
	Avg	Norm	Max	Min	Total	Norm	Total	Norm	Total	Norm	Total	Norm
Bottineau	71	68	91	48	1.22	0.66	7.83	8.68	124	108	1180	940
Bowman	74	69	97	53	0.03	0.51	9.44	7.90	132	119	1075	907
Carrington	72	70	88	56	0.07	0.82	8.38	9.53	136	120	1287	1020
Crosby	70	66	90	45	0.50	0.73	7.36	7.53	121	100	1135	850
Dickinson	74	69	96	51	0.12	0.65	8.72	8.68	136	113	1192	918
Fargo	76	71	92	63	0.26	0.66	8.77	9.61	149	129	1458	1108
Grafton	73	68	90	57	0.02	0.64	8.54	8.98	136	108	1255	965
Grand Forks	74	69	90	60	0.00	0.74	9.61	8.86	139	114	1342	989
Hazen	72	70	96	49	0.00	0.64	5.92	8.80	127	123	1202	1049
Hillsboro	73	70	90	55	0.15	0.80	7.46	9.46	133	120	1340	1035
Jamestown	73	70	88	56	0.50	0.81	9.65	9.08	136	121	1243	1008
Langdon	70	66	87	53	0.50	0.76	6.18	9.31	125	96	1125	803
Mandan	74	70	94	54	0.04	0.78	8.80	8.79	138	123	1273	987
Minot	72	68	92	51	0.44	0.63	5.53	8.74	129	110	1223	909
Mott	75	70	100	53	0.02	0.57	7.50	8.39	137	121	1185	966
Rugby	71	68	91	50	0.22	0.79	7.78	9.35	125	108	1195	952
Wahpeton	74	72	93	58	0.56	0.80	8.10	9.96	141	132	1424	1162
Watford City	73	69	94	50	1.01	0.66	6.30	7.55	128	115	1181	937
Williston	73	71	90	51	1.70	0.64	8.61	7.19	129	128	1188	1076
Wishek	72	69	87	58	0.29	0.66	9.76	8.17	132	114	1199	901

DAYLENGTH (July 16, McClusky, center of ND)²

Sunrise: 6:01 AM Daylength: 15h 34m
 Sunset: 9:35 PM Change since July 9: -12m

LONG-TERM OUTLOOKS³

July 21–25: Temp.: Normal; Precip.: Normal
 July 23–29: Temp.: Below Normal; Precip.: Normal

^{1,2,3} Sources: North Dakota Agricultural Weather Network, www.sunrisesunset.com, and National Weather Service, respectively.

^{4,5} Rain data begins April 1. GDDs for garden vegetables are not available. GDD data in this table are for corn, which responds to temperature as most vegetables grown in gardens. Data begin May 1 with base minimum and maximum temperatures of 50 and 86°F, respectively.

Credits

Sources:

Grabowski, M. 2018. Spot check: Look for tomato diseases now. University of Minnesota Extension Yard & Garden News.
 University of Nebraska. 2018. Drought Monitor, droughtmonitor.unl.edu/.Home.aspx

Photos were made available under Creative Commons licenses specified by the photographers. **Page 1.** Estil via Pixabay; Missouri Botanical Garden, www.missouribotanicalgarden.org/gardens-gardening/your-garden/help-for-the-home-gardener/advice-tips-resources/visual-guides/tomato-problems.aspx; Louisiana Plant Pathology Blog, laplantpath.wordpress.com/2012/05/04/its-time-to-control-early-blight-on-tomatoes/. **Page 2.** Bailey Nurseries, Inc. (2); Drought Monitor of the University of Nebraska. **Page 3.** David Cappaert, Bugwood.org; Kelsey Deckert, NDSU; Whitney Cranshaw, Colorado State University (2); Penny Nester, NDSU; Tom Kalb, NDSU; Sarah Crimmins, NDSU; Bruce Watt, University of Maine, Bugwood.org; Whitney Cranshaw, Colorado State University, Bugwood.org; Jack Skipworth, www.flickr.com/photos/theangryblender/

6805396270/; Angie Johnson, NDSU. **Page 4.** Marissa Leier, NDSU; Scot Nelson, www.flickr.com/photos/scotnelson/9734157719/; Yolanda Schmidt, NDSU; Susan Ellis, Bugwood.org; Lisa Brown, www.flickr.com/photos/meanandpinchy/5844147976/; Pudelinchen via Pixabay; Hans via Pixabay; John, www.flickr.com/photos/itsjustanalias/509183469/; michelle@TNS, www.flickr.com/photos/25904307@N08/7498741186/. **Page 5.** Hannah Burrack, North Carolina State University, Bugwood.org (2); E.H. Glass, New York State Agricultural Experiment Station, Bugwood.org; blogs.cornell.edu/jentsch/scouting-reports/; James Chatfield, Ohio State Univ., Bugwood.org; Calla Jarboe, NDSU; Joel Lerner, NDSU; Megan Vig, NDSU; Phil Roeder, www.flickr.com/photos/tabor-roeder/37244008984/; Jim, www.flickr.com/photos/alphageek/4577959885/; Kendall Eraas, NDSU.

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