

Missouri Environment & Garden

July 2014

Volume 20, Number 7

Turnip Day in Missouri

There is an old Missouri saying, “On the twenty-fifth of July, sow your turnips, wet or dry.” This local adage vaulted into the national spotlight during the presidency of Missouri native Harry S. Truman. Evidently, the congressional session of 1948 was a particularly rancorous one, with the GOP-dominated Congress refusing to pass any of President Truman’s initiatives. In reprisal, President Truman called a two-week special session to deal with matters Congress had refused to address before adjourning for the summer. The President proposed that it should begin on “what we in Missouri call Turnip Day—July 25th”

The tactic did not work since Congress still refused to pass any of President Truman’s initiatives in what historians refer to as the Turnip Day Session. However, it did bring to the attention of the American public that, at least in Missouri, late July is a good time to plant turnips.

Turnip (*Brassica rapa* var. *rapa*) is a member of the Brassicaceae (Mustard) family and has been cultivated since prehistoric times. Its common name is an old compound of the word neep, which was used by ancients as a name for the vegetable now called rutabaga (*Brassica napus*). Indeed, turnip and rutabaga are closely related, with the latter thought to be a chance hybrid between cabbage and turnip.

Turnip was well-established as a crop during the Greek and Roman eras. Roman naturalist and philosopher Pliny the Elder considered turnip to be a very important food source, ranking it just behind cereal grains and beans. He also mentioned its value as “animal fodder”, a use for turnip that still is practiced today. Its use a food for animals as well as the poor delayed its widespread acceptance by the upper class. By the 18th century, however, turnip was grown throughout the cooler climes of Europe and became an integral part of its food chain and culture.

(continued on page 2)



In This Issue

Turnip Day in Missouri	1
Plant Diagnostic Clinic Update	3
August Gardening Calendar	5

(continued from page 1)

French explorer Jacques Cartier is credited with introducing turnip to America when he planted it in what is now Canada in 1541. The colonists are known to have grown it in Virginia as early as 1609 and later in other (now) New England states. Native Americans were quick to adopt its culture from the colonists and grew it widely.

Turnip is a biennial grown both for its edible storage root as well as its leaves. In nature, the plant spends its first year growing and enlarging its root. During its second year, the plant flowers, produces seed and dies.

Because of its affinity for cool temperatures, turnip is an ideal fall garden crop. The cool days of late summer and fall are ideal for root development. Hot temperatures tend to make turnip roots fibrous and pungent. In the garden, turnip often is planted in space vacated when earlier crops such as peas, spinach or onions have been harvested. It also is feasible to plant turnip as a companion with corn. The seedlings will get some shade from the larger corn plants but will develop rapidly after the corn has been harvested and stalks removed from the garden.

Like most root crops, turnip prefers a fairly light soil. Heavy clay soils are less desirable and tend to inhibit root development and cause poor root shape. For best seed germination, prepare a seedbed that is fine and smooth. If a crop had been growing in the space in which turnips are to be seeded, remove it completely. Also, remove all debris and weeds. If the soil is dry, water the space to be seeded a day or two before digging or tilling.

Adequate fertility is important for turnip, especially in its early development. Apply a garden fertilizer (e.g. 5-10-5)

at the rate of about one pound for each 100 square feet of area to be planted. If the previous crop was very productive, this additional fertilizer might not be needed. In this sense, turnip is a good “cleanup” crop to make full use of fertilizer applied to the garden during a growing season.

Turnip seeds may be broadcast over the prepared soil or planted in rows 12 to 15 inches apart. Lightly cover the seeds after planting. If seeds are broadcast over the soil’s surface, a light raking after planting usually is sufficient to cover them.

In spite of the above-mentioned saying to sow turnips “wet or dry” daily light watering is advised until



seeds have germinated and become established. Moisture will not only aid seed germination, it will tend to cool the seedlings at a time when the weather is still a bit warm for turnip’s liking.

Turnip plantings are subject to attack by several insect pests. Flea beetle, aphid, root maggots and wireworms are the most problematic. Turnip diseases include white spot, white rust, downy mildew, anthracnose and alternaria leaf spot, all of which are caused by fungi. Bacterial black rot and leaf spot as well as mosaic virus can be problematic also. Crop rotation within the garden is helpful in managing turnip diseases.

Harvesting and storage of turnip varies somewhat with intended use.

Some are harvested by pulling both leaves and roots and binding them together in a bunch. If this method is used, a root diameter of about two inches is quite common. For turnips that will be topped and harvested for their root only, it is best to wait until roots have achieved a diameter of at least three inches. Turnip is relatively cold hard and can withstand freezing temperatures. However, harvest should be accomplished before the soil freezes. The latter tends to crack the roots which then decay in the soil.

Turnip roots are best stored at temperatures at or just above freezing (32-35o F.). Refrigerators are great for storage, if space is available. To store larger amounts of turnip roots, consider an unheated basement or outdoor pit storage. The latter consists of burying a large, water-proof container (e.g. 55 gallon plastic drum) in a semi-horizontal or slanted position. Put turnip roots in the container and place the lid on lightly to allow for air circulation. Finally, cover the storage container with a generous layer of straw held in place with a thin layer of soil

There are a number of turnip varieties well-suited for Missouri conditions. ‘Purple Top White Globe’ one of the best and forms a root shaped like a flattened globe with a purple top and creamy-white interior. It normally produces edible (four-inch) roots about 60 days after seeding. For an earlier harvest, ‘Tokyo Cross’ is a faster-maturing variety that produces two-inch roots in a mere 30 days. Contrastingly, ‘Golden Ball’ requires 70 days to produce golden-yellow roots that are sweet and flavorful.

*David Trinklein, Associate Professor
Division of Plant Sciences
TrinkleinD@missouri.edu*

Plant Diagnostic Clinic Update

The Plant Diagnostic Clinic has been re-opened for 2 months now. It has been a whirlwind of activity and a lot of learning on my part. I am grateful for all the assistance I've received from specialists in the Division of Plant Sciences and University of Missouri Extension. This write up highlights fruit, vegetable, ornamental and turf samples submitted. Two graphs are included to show the activity in the Plant Diagnostic Clinic thus far (Figure 1 and Figure 2).

Fruits and Vegetables

There have been several issues diagnosed on fruit samples. Winter injury was reported in both blackberry and blueberry. There has been some chemical injury reported on blueberry, blackberry, apple, pear and cherry due to drift from neighboring fields, accidental sprays from the grower or misapplication of fertilizer causing a phytotoxicity. Reporting on diseases, this spring has been a big fire blight year across the state of Missouri. The spring weather was perfect for this. Walking around the MU-Columbia campus there isn't a Bradford pear tree that isn't affected. For fruit-producing and ornamental trees, affected by fire blight, pruning is recommended. The MU-Extension publication, G6020, on fire blight is useful to learn about the disease and recommendations (<http://extension.missouri.edu/p/g6020>).

Other disease issues include:

Crop	Disease / Pest / Issue
Blueberry	Alternaria leaf spot Phomopsis twig blight
Pear	Cedar-hawthorne rust Fire blight
Strawberry	Rhizoctonia crown rot Gray mold Calcium deficiency
Watermelon	Bacterial fruit blotch Gummy stem blight
Blackberry	Nutrient deficiency
Apple	Fire blight

A handful of vegetable samples have been submitted, mostly tomatoes. Many of these have had chemical injury. Chemical injury has also been diagnosed on spaghetti squash and potato. The most common injuries are due to a growth regulator herbicide. In some cases the grower used an herbicide between rows or in close proximity. However, in most of the cases the grower is positive they have not

made an herbicide application. During the investigation, the source of damage is commonly the compost or manure used in the soil. Many growers don't think about the potential of herbicide carryover in manure or compost (straw, grass clippings or even wood chips).

There is an article from a MU extension specialist (<http://extension.missouri.edu/nwregion/hort/current/herbicide.shtml>) and an article from North Carolina State University (http://www.ces.ncsu.edu/fletcher/programs/ncorganic/special-pubs/herbicide_carryover.pdf) that covers this topic.

Diseases and issues diagnosed are listed below:

Crop	Disease / Pest / Issue
Garlic	Bacterial soft rot
Tomato	Bacterial canker, Bacterial stem rot, Undetermined virus, Gray mold, Pythium root rot, White mold, Southern blight, Frost injury, Physiological leaf roll, Juglone toxicity

Ornamentals

A number of cases of winter injury on ornamentals was diagnosed this spring. Many woody ornamentals were already stressed going into winter from the 2013 drought. A reminder that when the weather is hot and dry, supplemental watering to woody ornamentals is recommended. The common story with the evergreens is, they stayed green all winter long and when temperatures warmed up dieback was noticed. Green tissues turned brown practically overnight, or so it seems. The reason is that evergreens do not go into complete dormancy during the winter. During warm, sunny days the plants are still biologically active, reduced but still transpiring and using water. If the plants don't have enough water stored in their roots or if the ground is frozen making water unavailable, they become stressed. Since biological activity is reduced the plants will retain their green color. However, once the weather warms up and the plants go back to their full photosynthetic potential the dead parts are quickly abscised (cut off from receiving any water or nutrients), leaving branches, leaves or needles yellow and unaesthetically pleasing.

(continued on page 4)

The dead branches should be pruned as they can attract bark beetles or other insects. Plant species diagnosed with winter / cold injury include arborvitae, blue atlas cedar, pines (white pine the most prevalent), rhododendron and a tulip tree. There has also been a number of chemical injuries, which include drift from neighboring agronomic fields or misapplications by the homeowner or landscaping company.

Plant diseases and pests diagnosed include:

Ornamental	Disease / Pest / Issue
Boxwood	Boxwood mites
Cypress tree	Pestalotia canker
Geranium	Gary mold, Bacterial blight, Nutrient deficiency
Maple	Bacterial blight
River birch	Anthracoise
Weeping willow	Black cancer

Turfgrass

Turfgrass samples have been submitted from golf courses, parks, schools and lawns. The majority of these samples have come from golf putting greens, due to their need for intensive and aggressive management practices. Submitted plant species included creeping bentgrass, fescue, Kentucky bluegrass, and Zoysia grass.

The diseases and issues are listed below:

Type of turfgrass	Disease / Pest / Issue
Bentgrass	Pink snow mold Yellow patch Anthracoise Pythium root rot Blue green algae Nematodes
Fescue	Aphids, Sand abrasion
Kentucky bluegrass	Septoria leaf spot Pythium root rot
Zoysia	Large patch

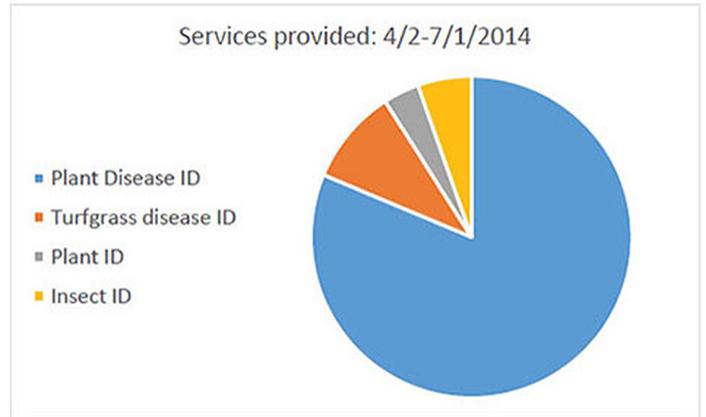


Figure 1: Services requested at the PDC.

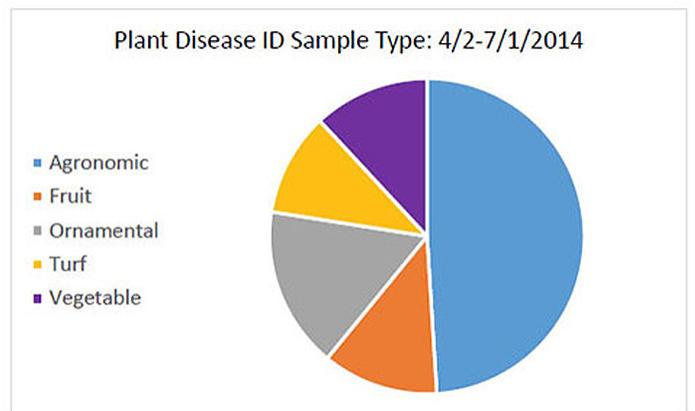


Figure 2: Types of plants submitted to the clinic for disease identification.

Patricia Wallace, Director
 Plant Diagnostic Clinic
 plantclinic@missouri.edu
 573-882-3019

View IPM Publications on the web
<http://ipm.missouri.edu/pubs.htm>

August Gardening Calendar

Category	Week				Activity
	1	2	3	4	
Ornamentals	x	x	x	x	Continue spraying roses that are susceptible to black spot and other fungus diseases.
	x	x	x	x	Annuals may appear leggy and worn now. These can be cut back hard and fertilized to produce a new flush of bloom.
	x	x	x	x	Deadhead annuals and perennials as needed.
	x	x			Divide oriental poppies now.
	x	x			Feed mums, asters and other fall-blooming perennials for the last time.
	x	x			Roses should receive no further nitrogen fertilizer after August 15th.
	x	x			Powdery mildew on lilacs is unsightly, but causes no harm and rarely warrants control, though common rose fungicides will prove effective.
	x	x			Madonna lilies, bleeding heart (<i>Dicentra</i>) and bloodroot (<i>Sanguinaria</i>) can be divided and replanted.
	x	x			Divide bearded iris now. Discard old center sections and borer damaged parts. Replant so tops of rhizomes are just above ground level.
	x	x			Prune to shape hedges for the last time this season.
		x	x	x	Order bulbs now for fall planting.
		x	x	x	Evergreens can be planted or transplanted now to ensure good rooting before winter arrives. Water both the plant and the planting site several days before moving.
		x	x	x	If you want to grow big dahlia flowers, keep side shoots pinched off and plants watered and fertilized regularly.
Lawns	x	x			Zoysia lawns can receive their final fertilizer application now.
	x	x			Apply insecticides now for grub control on lawns being damaged by their activity.
			x	x	Lawns scheduled for renovation this fall should be killed with Roundup now. Have soil tested to determine fertility needs.
				x	Dormant lawns should be soaked now to encourage strong fall growth.
				x	Verify control of lawn white grubs from earlier insecticide applications.
Vegetables	x	x	x	x	Compost or till under residues from harvested crops.
	x	x	x		Sow seeds of beans, beets, spinach and turnips now for the fall garden. Spinach may germinate better if seeds are refrigerated for one week before planting.
	x	x	x		Cure onions in a warm, dry place for 2 weeks before storing.
	x				Broccoli, cabbage and cauliflower transplants should be set out now for the fall garden.

Gardening Calendar supplied by the staff of the William T. Kemper Center for Home Gardening located at the Missouri Botanical Garden in St. Louis, Missouri. (www.GardeningHelp.org)

(continued on page 6)

August Gardening Calendar

Category	Week				Activity
	1	2	3	4	
		x	x	x	Begin planting lettuce and radishes for fall now.
			x	x	Pinch the growing tips of gourds once adequate fruit set is achieved. This directs energy into ripening fruits, rather than vine production.
Fruits	x	x	x	x	Prop up branches of fruit trees that are threatening to break under the weight of a heavy crop.
	x	x	x		Protect ripening fruits from birds by covering plants with a netting.
	x	x	x		Continue to spray ripening fruits to prevent brown rot fungus.
	x				Thornless blackberries are ripening now.
		x	x	x	Watch for fall webworm activity now.
		x	x	x	Cultivate strawberries. Weed preventers can be applied immediately after fertilizing.
		x	x		Spray peach and other stone fruits now to protect against peach tree borers.
		x	x		Fall-bearing red raspberries are ripening now.
		x	x		Sprays will be necessary to protect late peaches from oriental fruit moth damage.
Miscellaneous	x	x	x	x	Soak shrubs periodically during dry spells with enough water to moisten the soil to a depth of 8-10 inches.
	x	x	x	x	Once bagworms reach full size, insecticides are ineffective. Pruning off and burning large bags provides better control.
	x	x			Spray black locust trees now to protect against damage by the locust borer.
		x	x	x	Hummingbirds are migrating through gardens now.
		x	x		Watch Scotch and Austrian pines now for Zimmerman pine moth damage. Yellowing or browning of branch tips and presence of pitch tubes near leaf whorls are indicative. Prune and destroy infected parts.
			x	x	Clean out cold frames to prepare for fall use.
			x	x	Monitor plants for spider mite activity. Hose these pests off with a forceful spray of water.
			x	x	2nd generation pine needle scale crawlers may be present on mugo pine now.

Gardening Calendar supplied by the staff of the William T. Kemper Center for Home Gardening located at the Missouri Botanical Garden in St. Louis, Missouri. (www.GardeningHelp.org)