This past late spring and summer we have seen a significant amount of injury to garden and shrub roses caused by rose midge. The symptoms include a curling of the flower stalk [peduncle] downward, death of the terminal growing points on the shoot often resulting in blind wood [i.e. shoots that terminate in only a cluster of leaves with no flower bud], or the very small rose bud which is just beginning to develop turns brown and dries up, also resulting in a non-flowering shoot.

It has been my experience that symptoms can occur throughout the growing season but is usually more prevalent on the rose shoots destined to bloom in late June or early July. The rose midge, *Dasineura rhodophaga* [Coquillett], belongs to a group of insects known collectively as gall midges, although the rose midge itself is not a gall-producing insect. The adult midge is a very small [about 1/32 inch], yellow-colored fly, which does not feed and lives for only 1 to 2 days.

The insect overwinters as a pupa in loose soil under plants infested during the previous season. Adult emergence occurs as the soil warms sufficiently during late May and early June. Female midges lay their eggs under the sepal of flower buds, or in opening leafbuds and elongating shoots. The eggs will hatch in about two days during warm weather.

The little larvae begin feeding by making numerous slashes in the plant tissue near where they hatched. From these cuts they extract sap, and ultimately the wounded plant tissue dies, turns brown and then black. Depending on the size and development of the plant tissue, it is this wounding activity which can destroy vegetative shoots, kill small flower buds and/or cause abnormal flower development.

**The creamy white larvae mature in about 5 - 7 days**, depending on weather conditions, and reach a length of about 1/16 of an inch at maturity. Most of the time they normally drop to the ground where they pupate. However, during the summer months they will occasionally pupate in the injured rose tip. The entire life cycle takes about 12 - 16 days. Multiple generations are possible over the course of the summer. There are no cultivated or wild roses immune, although some may escape serious infestation because of a lack of simultaneous development of the plant and the insect.

The insecticide diazinon has been the pesticide of choice over the years. However, control can be somewhat inconsistent. Part of the reason for this is the critical timing needed to be successful in hitting the vulnerable periods in the insect's life cycle. Also, the larvae are very small and can be protected from contact insecticides by the newly-developing leaves and flower buds which help protect them. It would probably be best to alternate insecticides, being sure to include one or two systemic insecticides so that the material can get to the points of larvae feeding. When using insecticides, or any pesticide for that matter, be sure your roses are not under any water stress. Drought-stressed rose plants are much more susceptible to spray

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injury when stressed than when there is sufficient water in the
plant. This is especially true for pests, such as midge, which
require that contact pesticides be sprayed directly into the new
shoot areas which contain succulent plant tissue. This new
growth is much more susceptible to spray injury than older ma-
ture tissue.

Damaged shoot tips or flower buds should be re-
moved to help eliminate the maggots before they complete
their life cycle and drop to the ground. However, careful,
regular observation is essential for this practice to be helpful. In
the case of rose midge, a more preventive approach with a sys-
temic insecticide combined with early removal of infected tis-
sue will usually provide satisfactory control.

Life cycle information adapted from “Insects That Feed on
Trees and Shrubs” by Warren T. Johnson and Howard H. Lyon.

*D* * * *

The Minnesota Extension Service has recently published a
booklet, Pesticides: Surface Runoff, Leaching, and Exposure
Concerns.

While the information concerns itself mostly with pesticides
applied to bare soil surfaces rather than turfed areas, it is an
excellent review of fate of many of the pesticides used in agricul-
ture as well as the turf industry. I would highly recommend
the publication as one more piece of information to help you
address these kind of pesticide issues.

It is available for $1.00 from:
Minnesota Extension Service
Distribution Center
3 Coffey Hall
University of Minnesota
1420 Eckles Avenue
St. Paul, MN 55108

*D* * * *

The iris borer is the most destructive pest of Iris. As an adult
the iris borer is a drab, colored moth with a wing span of about
one inch. However, it is the caterpillar stage that does the injury.

The borer winters in the egg stage on old iris leaves and debris
at the base of the iris stalks. After hatching in early spring, the
caterpillar crawls up and enters into the leaf tissue. During feed-
ing, the tiny caterpillar works its way down the leaf, causing
water-soaked, brown streaks. In late summer it reaches the base
of the iris and begins feeding on the rhizome.

It is a small, slender caterpillar at first, but by the time it
reaches the rhizome, it has grown to 1-1/2 to 2 inches in length.
In addition to the feeding injury, the borer introduces a bacteri-
a into the tissue which causes a soft rot. At the end of the sum-
er the iris borer pupates in the soil at the base of the plants,
then emerges as a moth in the fall. The female moth lays eggs
which overwinter on the old iris plants and cycle repeats.

Control is difficult. Sanitation and insecticides are both
important in the control of iris borer. Remove old leaves and
stalks and dispose of any infested or rotting rhizomes. Clean-
ing up old iris plants in the fall removes the eggs and minimizes
the number of iris borers that will be present next year. One
application of an insecticide is necessary in the spring.

The timing is very important because the damage is usually
not noticed until it is too late for effective control. Dimethoate,
the recommended insecticide, should be applied when the iris
is four to six inches above the ground. Mix two teaspoons of
the 23.4% liquid insecticide per gallon of water [do not mix
more insecticide than you plan to use] and spray the iris leaves.

<table>
<thead>
<tr>
<th>Diamethoate [23.4%]</th>
<th>Water</th>
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<tr>
<td>2 teaspoons</td>
<td>1 gallon</td>
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<tr>
<td>1/2 teaspoon</td>
<td>1 quart</td>
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**How to Care For Birch Trees**

By Deborah Brown
Extension Horticulturist
Minnesota Extension Service

Many paperbark birches around the state are looking a bit
thin and raggedy. Despite decent rainfall this year, they're still
suffering the after effects of the past two summers' drought. Many
lost branches to winter kill; others may have been attacked by
the bronze birch borer, an insect that moves in when trees are
under stress.

Even though birch trees shouldn't be pruned any more than
is necessary for health and safety, all dead or dying limbs should
be removed or cut back to healthy tissue. August is the best
time of year to prune them, regardless of what actually damaged
the branches. Wounds will heal rapidly, and the bronze birch
borer is no longer active this late in summer.

Pruning paint or wound dressing is not needed. Much
research has been conducted over the past ten years, showing
that these paints and dressings really don't help the tree—
although they may offer some psychological aid to the tree own-
er. For paperback birch there's another reason not to put any-
thing over the pruning cuts: paint or dressing will contrast with
the white bark quite obviously. The wounds will be less visi-
ble if left to heal on their own.

If the soil your birch is growing in seems light, sandy or some-
what poor, plan to fertilize it next spring. You might also wish
to remove a circle of grass growing right up to the trunk, and
replace it with four inches or so of woodchip mulch. This not
only helps hold moisture, it keeps the shallow roots cooler in
summer. And when we go over a week without rain, by all
means, get a soaker hose or sprinklers out under the branches
and several feet beyond, to give it a really thorough soaking
every 10 to 14 days.

Finally, if all fails and the tree appears doomed, have it taken
down. But don't be afraid to plant birch again. River birch, with
peeling, cinnamon-colored bark is a tougher tree than the paper-
back birch. But even the paper birch is worth replanting. It grows
fast, and with some additional babying will usually be more
than worth the effort.