Wild Onion and Garlic

TWO EXPENSIVE WEEDS

Cultural control is most effective

Circular 572 • University of Illinois Agricultural Experiment Station
WILD ONION and WILD GARLIC CONTROL

By L. V. Sherwood, Assistant Chief in Crop Production

Losses from wild onions and wild garlic in the southern half of Illinois amount to at least a half million dollars yearly. The income from a 40-acre field of wheat yielding 25 bushels to the acre can be cut $100 a year by a dockage of 10 cents a bushel, which is not uncommon for grain contaminated with the small bulblets of wild garlic or onions. If milk cows are allowed to graze garlic and onions, the dairy products may be unsalable because of their undesirable flavor. Also the meat of any animal that has eaten onions or garlic immediately before slaughter has such an objectionable flavor that it is unmarketable.

HOW TO KNOW THESE WEEDS

Wild garlic (Allium vineale, L.) is sometimes called meadow garlic, garlic, field garlic, onion, and wild onion. It differs, however, from the wild onion in several particulars and is harder to eradicate, even tho the same methods are recommended for both. The main differences are outlined on page 3. The leaves of wild garlic are not only slender but also cylindrical and may be borne above ground on the stem; there is a cluster of underground bulbs instead of a single bulb; and the fibrous coverings of these bulbs are soft rather than netted as is the covering of the wild onion bulb. Both have a strong flavor and odor, but the wild garlic flavor and odor are usually the stronger.

Wild garlic is a perennial (grows year after year without reseeding) and can reproduce itself in five different ways:

1. By seed—a way limited to areas south of a line thru Alton and Robinson.

2. By soft-shelled bulbs—which mature in early summer and usually begin growth in the early fall.

3. By hard-shelled bulbs—which mature during the summer. A few germinate during the fall and winter, but most germinate in the spring.

4. By aerial bulblets—small, hard bulbs borne on the tips of the flowering leaves. These mature about the same time as wheat, are about the same size as wheat kernels, and are often harvested with the wheat.
5. By secondary aerial bulblets—which develop during the late autumn or winter following the cutting of the wheat and usually germinate early the next spring.

Wild onion (Allium canadense, L.), sometimes known as meadow garlic and often confused with wild garlic, is like the cultivated onion in general growth habits. Its flattened leaves always arise out of the underground bulb, which is covered with a fibrous netted coat; and it has no brown-coated hard-shelled underground bulbs, as has wild garlic.

HOW TO TELL THE PLANTS APART

<table>
<thead>
<tr>
<th>Leaves</th>
<th>WILD GARLIC</th>
<th>WILD ONION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Cylindrical</td>
<td>Flat</td>
</tr>
<tr>
<td>Base</td>
<td>Sometimes above-ground on stem</td>
<td>At ground level, rising out of bulb</td>
</tr>
<tr>
<td>Bulbs (underground)</td>
<td>Clusters at base of each plant</td>
<td>One at base of each plant</td>
</tr>
<tr>
<td>Number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Covering</td>
<td>Fibrous</td>
<td>Netlike</td>
</tr>
<tr>
<td>Kind</td>
<td>Hard-shelled (brown) and soft-shelled</td>
<td>All soft-shelled</td>
</tr>
<tr>
<td>Flavor and odor</td>
<td>Strong</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

PREVENTING ODOR IN MEAT AND MILK

Milk and other dairy products have very little objectionable flavor when the cows pasturing on fields infested with wild onions or garlic are kept out of such areas for four hours before milking. Allowing the milk to stand for four hours before using it also helps rid it of any odor that is left. Blowing clean or washed air thru it may speed up the process.

Meat can be kept free of the garlic or onion flavor which makes it unmarketable by taking slaughter animals off the infested areas and giving them other feeds for several days before slaughtering them.

GRAINS SUFFER SEVERE PRICE CUT

Millers often refuse to handle wheat that contains small bulblets of wild garlic or onions because it takes only a few to spoil the flour. Furthermore, the bulblets gum the rollers, making it necessary to stop the mills frequently and wash the rollers before the grinding can continue. Consequently it is not uncommon for growers to suffer a price cut of 7, 15, or even 20 cents a bushel on such grain.
Wild onion has aerial bulblets and one underground bulb but no hard-shell bulbs. Wild garlic has aerial bulblets and two kinds of underground bulbs, soft-shelled and hard-shelled. The hard-shelled bulbs (detached in the picture) are shiny and brown and are flattened on one side.
Altho the bulblets dry out and become lighter in six months to a year after harvest and are then more easily fanned out of wheat and other grains, it is not always feasible to delay grinding for such a long period. The infested grain can be dried in a commercial drier, after which the bulblets are easily removed by proper cleaning machinery. Treating the grain in this way, however, adds to the cost of processing, and is another reason why farmers get a much lower price for "garlicky" grain.

Cover picture shows wheat contaminated with wild garlic and onion bulblets.

**CONTROL MEASURES**

To control these pests, a plan of attack must be developed and followed. Not only must the plants be destroyed but they must be prevented from returning. If measures to stamp out the weed cannot be applied to all of an infested area at the same time, it is best to start on the higher ground first in order to prevent bulblets and seeds carried down in runoff water from starting fresh centers of infestation. Stragglers in fence rows, ditch banks, and other places must also be destroyed. Sometimes it is worth while to work out the details of the plan on a small area before applying it to a large area.

Crop seeds that are free from the seeds and bulblets of wild garlic and onions must be used. The combine and threshing machine must be cleared of all contamination before they are taken from one field or one farm to another. Since fresh manure infested with garlic and onion seeds and bulblets will carry these pests wherever manure is spread, all infested manure should be composted and allowed to become well rotted before it is applied to the land.

All these and other precautions must be followed in the plan of control.

**Cultural Control Most Effective**

A combination of spring and fall plowing plus the growing of a cultivated crop during the growing season has proved very effective in controlling these weeds. No skilled labor, special equipment, or extra cash outlay is required in such a plan.

Fall plowing, usually done in Illinois about the first of November or later, serves two main purposes: (1) it turns many of the bulblets up to the surface, where they are killed during the winter; and
(2) it destroys the plants—the large ones that have developed from the soft-shelled bulbs, the delicate ones arising from the aerial bulblets, and the small but vigorous ones growing from the hard-shelled bulbs. Usually the larger the garlic plants, the more effective fall plowing is in killing them.

**Spring plowing.** done in Illinois about the first of April or earlier, serves about the same purposes as fall plowing and in addition prevents underground bulblets from being produced.

The aim of all plowing operations must be to turn the plants under well. Disking is never a satisfactory substitute for plowing because it does not turn under top growth or properly turn up the bulblets.

During the growing season between spring and fall plowings, a cultivated or intertilled crop should be grown on the infested land. Thoro cultivation of such a crop kills stray garlic and onion plants and prevents new garlic and onion growth and reproduction. Furthermore cultivated crops are not likely to become contaminated by aerial bulblets and thus become sources of spread. Complete control of these weeds by this method requires spring and fall plowing plus the growing of a cultivated crop for at least two years and possibly three.

**Chemicals Too Costly on Large Fields**

The use of chemicals for the control of garlic and onions is too costly for use on large fields and has met with only varying degrees of success. Altho many chemicals have been tried, none has been entirely satisfactory. On some patches successful kills were made, but on others the results were very poor. Altho too expensive for use on large fields, chemicals can be used economically on small patches, in fence rows, and other places that cannot be reached with machines. Weeds not reached or destroyed by the chemicals should be hoed by hand.

Chlorates, either dry or in solution, may be tried on small areas. Sodium chlorate or Atlacide should be used at the rate of 3 or 4 pounds to a square rod. The amount of water for the solution is immaterial, but about 3 gallons are needed to cover a square rod properly when a sprinkling can is used. Fall applications usually give best results. A second application may be needed in the spring to destroy any plants missed in the fall.

(Chlorates are a FIRE HAZARD and must be carefully handled. More details about their use and handling are given in a mimeographed pamphlet, “Chemical Warfare on Weeds With Chlorates,” which can be obtained free of charge by writing the AGRONOMY DEPARTMENT, UNIVERSITY OF ILLINOIS, Urbana.)
Oil Can Be Used on Small Areas

Kerosene, used tractor oil, and fuel oil are effective against wild garlic and onions, but their high cost is a drawback. At least three successive years of treatments are required, one application being made each year before the heads form, usually between April 15 and May 1 in Illinois.

When any of these oils are used, they should be applied with a sprinkling can or a sprayer at the rate of $\frac{1}{2}$ gallon per square rod. The leaves of the weeds should be well covered, but the soil should not be saturated, for if it is, it will not produce any desirable vegetation for several years.

Spraying is better than sprinkling because, by spraying, the plants can be completely covered without excessive waste of oil. Waste oils should be strained and heavy oils diluted with kerosene.

Since oil destroys rubber, the sprayer should be cleaned immediately after use.

Lawn and Garden Infestations

Pulling is the best method for ridding small areas, such as lawns and gardens, of these pests. A single pulling, however, will not do the work, for not all the underground bulbs grow at the same time or in the same season. Repeated and persistent effort for two years and possibly three is needed. If every new plant is pulled as soon as it comes up, or at least before it produces seed heads, all the underground bulbs will eventually be removed. If top growth is permitted to develop, it will manufacture food and nourish the underground bulbs. These will produce more bulbs, making the job endless.

Various chemicals were tried as a means of killing scattered individual plants or clumps on a lawn, in tests at this Station. Common salt, fuel oil, coal-tar creosote oil, and others were used separately, a small quantity of each being applied to a plant or group of plants. Every one of these substances killed the aboveground parts of the plants, but only coal-tar creosote oil injured the underground bulbs. One or two tablespoons of oil are enough per plant or small clump. Sometimes sodium chlorate and Atlacide are effective when applied in this way.

Despite the preference of many people for chemicals, the best way to get rid of individual plants and small clumps in lawns and gardens is to dig them out and destroy them. Where a serious general infestation occurs, the most practical and cheapest course may be to dig up the lawn and reseed it.
CONTROL ON CROP AREAS

1. Sow only garlic-free and onion-free crop seeds, being especially careful about wheat.

2. Follow a cropping system that will kill the underground bulbs and prevent the growth of aerial bulblets. (Include crops that permit or require fall plowing; grow cultivated crops, such as corn, row-planted soybeans or cowpeas, sorghums and horticultural crops; grow spring-seeded rather than fall-seeded small grains.)

3. Get rid of these weeds on higher fields first, so that soil erosion and drainage will not cause adjoining clean fields to become contaminated from infested land.

4. Don't use contaminated hay, straw, or barnyard manure on or near clean soil.

5. Be careful not to scatter plants or bulblets from one place to another by cultivation implements.

6. Inspect and if necessary clean the threshing machine and other implements before using them on clean fields.

7. Clean up fence rows and waste places, so that onion and garlic plants growing there will not spread to clean land.

Urbana, Illinois

March, 1944