

# Wild Radish—Biology and Control<sup>1</sup>

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Wild radish is one of the most common and problematic pasture weeds in the Florida Panhandle. It is found throughout the state and can be a serious pest in other crops, including peanut, corn, and winter vegetables. This publication provides information about wild radish biology and growth, problems associated with it in wheat, other small grains, and cover crops, and control and management methods.

## Biology

Wild radish (*Raphanus raphanistrum*) is a member of the Brassicaceae plant family with cabbage, turnip, and mustard. Most of these species are cool-season plants and have been introduced from Eastern Europe and Asia. Wild radish has traditionally been classified as a winter annual. Generally, these species germinate during the fall months, when soil temperatures drop below 65°F, after fulfilling the chilling requirement to break seed dormancy. In addition, wild radish has a thick fruit pod from which the seed does not shatter (free up from pod) easily. Therefore, the pod must decay before the seed can be released for germination.

After emergence, wild radish forms a rosette of leaves throughout the winter and early spring (Figure 1). Wild radish seedling possesses heart-shaped cotyledons. The first

true leaves are slightly serrated, indented, and about two to three times longer than their width. As the leaves mature, the serrations become more jagged and more deeply indented. Stiff hairs cover the leaves, giving them a bristly feel.



Figure 1. Wild radish (seedling with cotyledon).  
Credits: Pratap Devkota, UF/IFAS

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The wild radish plant remains in rosette form through most of the winter, reaching approximately 10 to 14 inches across the base. As the temperature and day length increase in the late winter to early spring, the plant bolts (Figure 2). Bolting is a process in which the internodes (regions of the stem between leaves) begin to lengthen and a flower stalk forms at the top. In wild radish, multiple flower heads form on several branches arising from a single flower stalk. The flowers are generally yellow but occasionally may be white. Pods are slender and constricted between seeds, forming a notched appearance and giving the impression that multiple seed segments are joined (Figure 4). Each fruit pod produces about 4 to 9 seeds. Wild radish seedpods do not shatter (i.e., each seed section does not break up) as wild mustard seedpods do.



Figure 2. Wild radish (rosette).  
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Figure 3. Wild radish (bolt).  
Credits: Jay Ferrell, UF/IFAS



Figure 4. Wild radish (seedpod).  
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## Control Prevention

The first step in controlling wild radish is prevention, which can be addressed by two strategies.

The first is reduction of the seed population in the soil to keep the weed from infesting an area. This is accomplished by preventing the wild radish from going to seed (i.e., good early-season control) and not allowing reintroduction from other sources. For example, sowing winter pastures with certified seed will prevent the possibility of accidentally spreading weed seeds.

The second strategy is to maintain a dense pasture. Wild radish will grow most vigorously where there is a break in the sward. Therefore, proper grazing and soil fertility will likely minimize the impact of this weed.

## Mechanical

Mechanical control for wild radish is an option, but it is rarely effective. Mowing will generally leave the basal leaves unharmed and allow regrowth to occur within a short period. Additionally, a single wild radish plant will often produce many flushes of flowers and set several seeds. Regular mowing cycles will reduce seed production but fail to eliminate it. Frequent mowing will also reduce the productivity and forage yield of the pasture. Therefore, mowing to control wild radish is often more expensive and less effective than other options.



## Chemical

One of the most common and cost-effective methods of controlling wild radish is using herbicides. Some of the most effective and inexpensive herbicides for wild radish control are growth regulators, such as 2,4-D and dicamba (Banvel, Clarity, etc.). These herbicides provide excellent control of wild radish (Figure 5) when properly applied. The growth-regulating herbicides are generally considered safe on grasses. However, grass crops can be injured if these herbicides are applied incorrectly or at the wrong developmental stage of the crop. Applications of phenoxy-type herbicides should be made to grain crops after two to three tillers have formed; plants are often 4 to 6 inches tall at this time. Applications of these materials before this stage of growth cause a “rat-tail” effect, whereby the leaf does not form and unfurl properly. In addition, the plant may appear stunted and delayed in maturity. Conversely, applications made after the jointing may result in malformed seedheads. Tolerance of cool-season forages to herbicides will vary according to species. Generally, wheat is the most tolerant and oats are the least tolerant to 2,4-D applications.

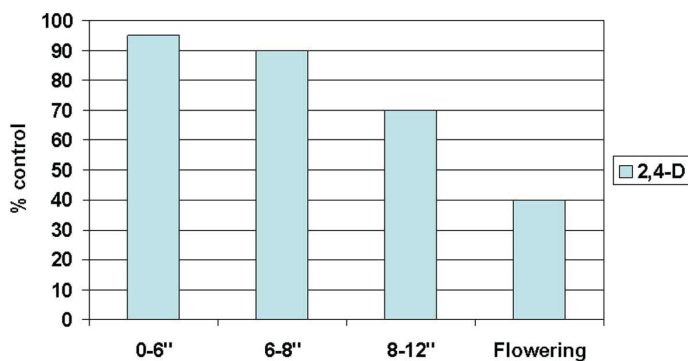


Figure 5. Effect of 2,4-D applied at 1 pt/A on wild radish control as impacted by weed size at the time of application.

The timing of an herbicide application is critical for effective wild radish control. Research has shown that more than 90% wild radish control can be consistently achieved when 2,4-D is applied to plants less than 6 inches in height. Delaying the application until the plant reaches 12 inches lowers control to approximately 70%. If wild radish begins to flower before 2,4-D is applied, less than 50% control should be expected. Therefore, herbicides should be applied early to achieve the greatest wild radish control while avoiding herbicide injury to winter forage.

For bermudagrass hayfields, control of wild radish is usually attempted well after flowering and seed development. Control of fully mature plants with 2,4-D can be very difficult. In these situations, metsulfuron (MSM 60, others) at 0.2 oz product/A is most effective. Depending on the temperature at the time of application, metsulfuron

may require 3 to 5 weeks to control mature wild radish. However, this herbicide is highly effective on wild radish and is safe on bermudagrass at any stage from dormancy to full green-up.

## Applications with Nitrogen

It is a common practice for many growers to tank-mix phenoxy materials with liquid nitrogen to reduce application costs. This practice is acceptable, but certain factors require consideration. The first is the size and density of the wild radish. Nitrogen should be applied near full tiller to maximize nitrogen available for grain development. If the wild radish density and size are already large, yield loss and reduced control may occur. Applying nitrogen too early to gain a weed control advantage may result in nitrogen deficiency in late season during grain fill. The best rule of thumb is to apply each at its proper time; if these times coincide, a tank mix may be employed. If not, the aforementioned factors need to be weighed beforehand.

If you plan to use 2,4-D in combination with nitrogen, note the herbicide formulation. The ester formulation of 2,4-D will readily mix with nitrogen solutions, but the amine formulation must be mixed with water before being added to the nitrogen solution. Failure to preslurry with water can result in an uneven distribution of herbicide in the spray tank. It should also be noted that spraying the ester formulation of 2,4-D with a nitrogen carrier will often result in greater leaf burning compared to the amine formulation.

## Summary

Wild radish is a common weed problem in winter forages. Management of wild radish depends on several factors. The most important factors are often weed size and crop stage at time of application. Regularly scouting fields will allow you to know the level of weed pressure. Knowing this information will often make the herbicide application decisions much easier. All herbicides applied in grazing areas carry specific grazing restrictions. Consult the herbicide label or your local UF/IFAS Extension office for more information on specific grazing restrictions.