Wild Mustard and Wild Radish

Charlie Cahoon, Extension Weed Specialist
Eastern Shore AREC-Virginia Tech

Scientific name: *Sinapis arvensis* and *Raphanus raphanisturm*
Other names: Wild Radish: Jointed charlock, jointed radish, jointed wild radish

Both members of the *Brassicaceae* (mustard) family, wild mustard and wild radish are ubiquitous in the United States and the mid-Atlantic region. Both are well known winter annuals; however, wild mustard and wild radish are also capable of spring emergence. Typically, both species emerge during the fall and overwinter in the rosette stage. The following spring, stem regions between the leaves will begin to lengthen and flower stalk will form at the top; a process known as bolting. Both species have a stout taproot, can reach 3 feet in height, and are capable of producing 800 to 1,200 seed per plant. It can be difficult to distinguish between wild mustard and wild radish. Leaves of wild radish are much more deeply lobed (often reaching nearly back to the midvein) than wild mustard. Flowers of wild mustard are bright yellow. Comparatively, flowers of wild radish are paler yellow and can become white with age. Wild mustard has straight jointless seed pods, whereas seed pods of wild radish are jointed (constricted between seeds at maturity) and appear ribbed.

Wild mustard. Virginia Tech Weed ID Guide.

Wild radish. Notice the deeply lobed leaves of wild radish as compared to wild mustard. Virginia Tech Weed ID Guide.

Herbicide resistance:
Regionally, herbicide-resistant biotypes of wild mustard and wild radish do not exist. In North Dakota, wild mustard has developed resistance to ALS-inhibiting (Group 2) herbicides. Herbicide-resistant wild radish has not been observed in the United States. Globally, biotypes of wild mustard and wild radish resistant to Group 2, synthetic auxins (Group 4), and triazine (Group 5) herbicides and Group 2, Group 4, Group 5, glyphosate (Group 9), and carotenoid biosynthesis-inhibiting (Group 12) herbicides exist, respectively.

Management:
Wild mustard and wild radish are more prevalent in no-till systems. Although tillage can effectively control wild mustard and wild radish, it can also stimulate seed germination. Wild mustard and wild radish can be difficult to control with herbicides. This is often attributed to plant size at time of herbicide application. Many herbicides that control small (≤ 6 inches) wild mustard and wild radish are ineffective once these species begin to bolt. In a no-till system, timing burndown applications prior to bolting of wild mustard and wild radish is key to successful control of both species. For preplant burndown applications in the mid-Atlantic region, targeting wild mustard and wild radish in March or early April with 2,4-D is normally in order. Likewise, for winter small grains, wild mustard and wild radish treated in the fall are easier to control than plants treated during the spring.

Wild mustard and wild radish are difficult to control with herbicides after the weeds have bolted and flowered (above). Target these species in the rosette stage in either the fall or early spring. Virginia Tech Weed ID Guide.

Corn: Wild mustard and wild radish should be targeted prior to planting corn. Preplant burndown, 2,4-D is the most effective herbicide against small and more mature wild mustard and wild radish. Glyphosate or paraquat + 2,4-D is a popular choice for both species. Dicamba is less effective than 2,4-D. For small wild mustard or wild radish preplant, thifensulfuron + tribenuron [Harmony Extra] + glyphosate or paraquat, saflufenacil [Sharpen] + glyphosate, atrazine + paraquat, and flumioxazin [Valor SX] + glyphosate are effective. Consult labels for information regarding plant-back restrictions. Postemergence in corn, 2,4-D and dicamba in combination with glyphosate are most effective.

Sorghum: Wild mustard and wild radish should be targeted prior to planting sorghum. Similar to corn, 2,4-D and dicamba are the most effective preplant and postemergence options.

Dicamba is not as effective as 2,4-D. Preplant burndown, glyphosate + saflufenacil [Sharpen] and paraquat + atrazine are effective against small wild mustard and wild radish. Consult labels for information regarding plant-back restrictions.

Soybeans: Wild mustard and wild radish should be targeted prior to planting soybean. Preplant burndown, 2,4-D is most effective followed by dicamba. Glyphosate or paraquat should be applied in combination with 2,4-D or dicamba to improve control. For small wild mustard or wild radish preplant burndown, tribenuron containing products plus glyphosate or paraquat, rimsulfuron + thifensulfuron [Leadoff] + glyphosate or paraquat, saflufenacil [Sharpen] + glyphosate, metribuzin + paraquat, and flumioxazin [Valor SX] + glyphosate are effective. Consult herbicide labels for information regarding plant-back restrictions. Large wild mustard and wild radish are difficult to control postemergence in soybean. For very small ($\leq$ 3 inches) wild mustard or wild radish postemergence, many of the Group 2 and PPO-inhibiting (Group 14) herbicides, bentazon [Basagran], and glufosinate [Liberty] (for LibertyLink cultivars only) provide suppression.

Forages: For grass hay crops, most Group 4 herbicides and metsulfuron effectively control both species. For legume forages, 2,4-DB is effective against small wild mustard and wild radish.

Small grains: Wild mustard and wild radish should be targeted while still small during the fall. 2,4-D and MCPA effectively control both species. Dicamba is not as effective as 2,4-D or MCPA. For small wild mustard and wild radish, thifensulfuron + tribenuron [Harmony Extra] and pyroxsulam [PowerFlex HL] offer good control and are the best alternatives to Group 4 herbicides (2,4-D, dicamba, and MCPA).

Fall or fallow application: 2,4-D and dicamba (less effective than 2,4-D) + glyphosate or paraquat will provide good control of wild mustard and wild radish that have yet to bolt.