

JOHNSON GRASS, *Sorghum halepense*
Know Your Enemy --- To defeat this tough weed, you need to know how it works.

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Johnson grass is one tough weed that grows well on poor soils and thrives on managed soils where supplemental fertilizers have been applied. Johnson grass does especially well in and around nurseries. The following is a summary of my research into how the plant grows and practical experience in terms of effective control.

To effectively combat Johnson grass, the following points must be considered:

1. Johnson grass effectively propagates by both seeds and underground stems called rhizomes. Both aspects must be part of an effective plan.



2. Seeds are quickly produced and have an amazing survival mechanism. Seeds allowed to develop and mature normally have a chemical inhibitor in the seed coat. The concentration of this inhibitor varies from seed to seed and plant to plant. The inhibitor prevents seed germination until rainfall or irrigation has leached the level down to near zero. This is why new Johnson grass is much more prevalent during a wet year as opposed to a dry year. Seeds may be present in the soil for 5, 10, 20 years or more before germinating. So keep your guard up. Just because you did not have Johnson grass in a spot last year, does not mean you will be clean again this year.
3. Mowing off Johnson grass does little to provide control. When the top is cut off, the plant simply re-grows more prostrate. If mowing is an option, be sure to mow before the seeds are very far along. The seeds mature quickly and if cut off before the seed coat with the inhibitor develops these seeds typically germinate the next growing season.
4. Preemergent herbicides such as Treflan, Surflan, Pendulum and others effective against grasses are effective in preventing seed germination. Where this is an option, it is very helpful, but remember this addresses only the seeds.
5. Underground, Johnson grass develops an aggressive root system and horizontal stem called a rhizome. As the rhizome grows horizontally, it typically develops nodes every 2 to 8 inches. Whenever a node is produced, the new tissue is effectively walled off from the old tissue and a new plant grows from beyond the node. A rhizome may extend several feet during a growing season and have 10 or more nodes with new tops and root systems growing from each node. In order to control the weed, glyphosate must be applied to the top of each plant. Glyphosate applied to node A and node C will have no effect on node B due to this walling off process. This is why coverage must be thorough and repeat applications necessary.

6. Not all nodes of a rhizome develop tops at the same time. Nodes A and C may have produced a vigorous top but nodes B and E have yet to produce a top. This is a major reason why it takes, typically three or four applications of glyphosate to clean up the rhizome population in a spot.

7. Glyphosate [the active ingredient in Roundup] is very effective in controlling Johnson grass and is sold under a variety of brand names. Look at the label carefully as it should say 41% glyphosate. Do not skimp on the rate. I use 2 quarts per 25 gallons of water (a 2% solution). This is to have better control of the plants that are smaller and shadowed by taller plants. With this higher rate, even if the smaller plant gets only a light dose of glyphosate, it will still be controlled. Thorough coverage is essential.



8. Glyphosate is less effective with leaves are covered with dust. Glyphosate is inactivated almost immediately when it contacts the soil. Dust is soil and unless the spray is applied sufficiently heavy to both wash off the dust, plus leave unaffected chemical on the leaf surface, control will be poor. I typically watch for a time just after a rain to spray Johnson grass. Just a few 10ths of an inch of rain will wash the dust off the leaves and make a difference in control.
9. In most areas it is advisable to add muratic acid to the spray tank of water before adding the glyphosate. Glyphosate is an acid. Acids typically quickly and freely react with bases and most waters are from mildly to very basic due to the dissolved calcium and magnesium bicarbonates present. Acidifying the water in the spray tank before adding the glyphosate takes care of this process and the glyphosate remains fully effective. The other reason to add the acid is to prevent the formation of a thick, milky substance in the spray tank that clogs screens and nozzles. The thick, milky substance is the result of a reaction of the acidic glyphosate and the basic compounds in the water. My practice is to start running water into the spray tank, then add about 1 quart of muratic acid per 25 gallons of water (muratic acid is commonly used to lower the pH of swimming pools and is commonly available). When the spray tank is about ¾ full, the glyphosate is added. Most of the various formulations of the generic glyphosate have a surfactant added, so adding more is not necessary. However, after adding the glyphosate and while finishing filling the spray tank, you do not see some foam produced, then adding a surfactant such as Surf King or similar will help in getting good leaf coverage by the spray.