Johnsongrass: A Problem on Indiana Farms

Oliver C. Lee

http://docs.lib.purdue.edu/agext/387
JOHNSONGRASS
a problem on Indiana farms

SPREADS RAPIDLY BY RHIZOMES AND SEED
CHOKES OUT FIELD CROPS
IS DIFFICULT TO CONTROL
HARBORS CORN DISEASE VIRUS
REDUCES LAND VALUE
Johnsongrass is an extremely serious and competitive weed in Indiana. It spreads rapidly in the field and chokes out almost any competing crop, notably corn and soybeans. Because of its seriousness as a field weed in Indiana, Johnsongrass has been designated as “noxious.” Under law, no crop seed containing any Johnsongrass seed can be sold for seeding purposes.

This weed is very difficult to control. Its rootstocks (rhizomes) are deep and fast-growing. And since it can spread by both rhizomes and seeds, Johnsongrass is not easily eliminated.

In addition to reducing crop yields and lowering the value of the land, Johnsongrass is also a host for the virus causing *maize dwarf mosaics*—the state’s newest corn disease. To date, this disease has been found in 10 southern Indiana counties. And in all cases, affected corn fields were also infested with Johnsongrass. The virus overwinters in the weed’s underground stems.

**Extent of the Problem**

A recent survey shows widespread infestations of Johnsongrass. It is found on more than 15,000 farms in 54 Indiana counties. Over one-third of these farms are considered heavily infested. The survey also discloses that 250,000 of the 614,000 infested acres are in upland areas. Previously, it had been felt that the Johnsongrass problem was primarily confined to bottom lands.

**Characteristics**

Johnsongrass is a perennial—that is, its root parts remain alive in the soil from year to year. It grows to an average height of about 6 feet but may be as tall as 10 feet, depending on stand density.

The stems are erect, pencil-thick, and bear leaves that are ½ to ¾ inch wide, 6 to 25 inches long, and light green at the midrib. There are several stems per plant. The seed heads at the top of the stems are branched and a reddish color when mature. The plant resembles sudangrass.

Seeds are oblong, dark red or brown in color, and slightly larger than red clover seed. One plant can produce more than a pound of seed per year.

Underground, Johnsongrass produces a massive network of heavy rootstocks (rhizomes). These rhizomes are approximately ½ inch thick. A single plant can produce, in one growing season, over 100 feet of rhizomes containing numerous buds that will form new shoots.

**How Johnsongrass Spreads**

Johnsongrass is usually introduced into an area or from one field to another by seeds. These seeds are brought in along with impure crop seed, in hay or straw, by flood waters, or on farm machinery moved from infested fields.

If seedling plants are allowed to reach the 6- or 7-leaf stage, they produce white, spur-like growths underground. These growths then develop into rhizomes, which live over winter and, in turn, produce new top growth the following year. Greatest production of rhizomes
occurs when the plant is flowering and setting seed. Patches of Johnsongrass enlarge as these rhizomes grow out from the main plant or as they are scattered over the field during tillage operations.

**Preventing Spread**

*Preventing an infestation of Johnsongrass is far easier than trying to eradicate one already established.* Following are suggestions for checking the spread of this weed:

1. Make sure the crop seed you use is free of Johnsongrass. The Indiana seed law bars sale of crop seed containing any prohibited noxious weed seeds, such as Johnsongrass. Check the label before you buy.

2. Do not move hay or straw from infested to clean fields.

3. Do not spread on a clean field any manure from animals fed Johnsongrass hay.

4. Thoroughly clean all machinery, especially combines and corn pickers, before moving from one field to another. Also check tillage and cultivating equipment, which may carry rhizomes from infested areas to clean parts of the field.

5. Constantly be on the lookout for Johnsongrass seedlings along fence rows, roadsides, as well as in fields. Immediately destroy all plants or patches you find.

**Eradicating Small Infestations**

Chemical treatment of large Johnsongrass infestations may be too expensive to be practical. However, use of herbicides (chemical weed killers) is both effective and practical for killing small patches.*

**Reducing Extensive Stands**

Clean cultivation, without a crop, will reduce heavy stands of Johnsongrass. First, plow the land in June. After that, use a heavy-duty disc or sweep-type cultivator at frequent intervals to keep down top growth and break up the rhizome system. This means cultivating or discing every 2 weeks or so to keep all growth under 6 inches high. Continue cultivation until frost in the fall.

For a more thorough job of eradication, a small grain (preferably wheat) may be seeded that fall. After harvesting the crop the following summer, the land should be plowed then cultivated at regular intervals until frost.
Another effective method is to sow infested fields to wheat. As a rule, Johnsonsgrass does not make sufficient early growth to affect this crop. After harvesting in early July, plow the land and cultivate every two weeks or so to keep down top growth until frost. Such a program can be continued for several years for more complete control of Johnsonsgrass.

Fields planted to corn after Johnsonsgrass stands are reduced should be treated with a pre-emergence herbicide to control seedling growth.* Nothing is gained by destroying established plants then allowing the seedlings to reinfest the field. Also, if any patch infestations do appear, destroy them immediately with a recommended herbicide.*

* The number and kind of herbicides suggested for Johnsonsgrass control, and how and when to use them, are constantly subject to change. Federal regulations and use restrictions make it even more essential that farmers apply the right material in the right amounts at the right time.

To provide you with the most up-to-date herbicide information and recommendations, Purdue Extension weed specialists prepare an annual guide entitled Weeding with Chemicals, ID-1. Listed in easy-to-read table form are the weeds to be controlled, the materials suggested, rates and times of application, and any precautions and/or restrictions regarding use.

ID-1 is available free of charge to Indiana residents from your local County Extension Office or the Agricultural Publications Office, AES Building, Purdue University, Lafayette, Indiana 47907.

prepared by
Oliver C. Lee
Department of Botany and Plant Pathology

Johnsonssgrass is a host for the virus causing maize dwarf mosaic. Note the dwarfed, bushy appearance of infected corn (below) and the typical mosaic on Johnsonssgrass (above).