Cover Cropping Between Orchard Plantings

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Now is the time for seeding midsummer grasses in fallow blocks that are between plantings. Growers who are planning to plant a new orchard site (or a replant site) next year can consider the use of cover crops before planting an orchard. The benefits are numerous.

When used prior to orchard planting, cover crops can:

• improve organic matter
• break up compaction layers in the soil profile
• suppress weeds
• reduce erosion
• decrease presence of plant pathogenic nematodes

We recommend the use of sudangrass or a sorghum-sudangrass hybrid. They are both midsummer grasses suitable for short, 8-10 week plantings. Seeding rates are 30 lbs/acre for biomass and nematode control, and 50 lbs/acre for weed control.

Seeding timings are June through mid-August for sudangrass, and July through mid-August for sorghum-sudangrass.

Steps to Establishing and Incorporating Sudangrass for Orchard Replant Cover Cropping

Spring following orchard removal

- Rip soil thoroughly to expose additional roots and large rocks for removal.
- Collect soil and nematode samples
- Treat the entire site with glyphosate to eliminate perennial weeds, such as bindweed.
- Apply lime to adjust soil pH and incorporate by deep plowing. If more than 1,500 pounds of total oxides per acre are required, apply half before plowing and incorporate the remaining half after plowing by disking to add the material throughout the future rooting zone.
- Broadcast 50 pounds of actual nitrogen per acre along with the required amounts of phosphorus and potassium needed for forage crops, based on soil test results, and incorporate these materials as the killed vegetation is plowed or disked under.
- Beginning in mid-June, plant the sorghum-sudangrass. Drill at 35 to 40 lb per acre, as deep as 2 inches to reach moist soil. If surface moisture is adequate, broadcasting the seed is an option; however, increase the rate to 45 to 50 lb per acre.

Mid-July through Mid-September

- Mow sudangrass when stalks are 3 to 4 feet tall, leaving at least 6 inches of stubble. This encourages the production of side shoots and deeper root growth while continuing to suppress weeds. Deeper rooting will help to break up any compaction layers in the field. Mowing at this stage also prevents the sudangrass from getting too woody.

Mow sudangrass when 3 to 4 feet tall. Photo by Tara Baugher, Penn State.

- Add additional nitrogen after this mowing to support regrowth.
- In mid-August through mid-September, mow sudangrass using a flail mower or use some other strategy to chop and macerate the grass as much as possible. After this mowing, incorporate the residue immediately, and follow with a cultipacker. To get the most nematicidal activity from your sudangrass, it is best not to mow down more area than can be plowed under within two hours. The soil conditions during sudangrass incorporation should be similar to those for soil fumigation, i.e., some soil moisture and soil temperatures above 50° F. Mowing injures the plants and initiates a process that releases nematicidal compounds into the soil. Failure to incorporate and seal the chopped plant material into the soil quickly allows much of these available toxicants to escape by volatilization. A steady rain following disking will also prevent the escape of volatiles.

Use a flail mower in August/September. Incorporate immediately, and then follow with a cultipacker to get the most out of the nematicidal compounds within the sudangrass. Photo by Tara Baugher, Penn State.

Much of this information came from an article by Penn State. More information on these practices can be found here: https://extension.psu.edu/planting-sorghum-sudangrass-following-orchard-removal

If you are already using these cover cropping practices on your orchard, or would like try it out, Mike would be interested in collecting some soil quality data before and after. Reach out to him for more info.