Planning Ahead with Midsummer Grasses

M. Miranda Sazo and S. A. Hoying

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. Their benefits are numerous. When used they can: (1) improve organic matter, (2) break up compaction layers in the soil profile, (3) suppress weeds, and (4) control erosion. We recommend the use of sudangrass (see Table 1), but several other cover crops can be used. A more complete list of cover crop options can be found at the web site prepared by Thomas Björkman (http://www.nysaes.cornell.edu/hort/faculty/bjorkman/covercrops/decisiont). This tool was originally designed for vegetable growers, but is still very useful for fruit growers as well.

Sudangrass and sorghum-sudangrass are midsummer grasses suitable for short, 8-10 week plantings. Sorghum-sudangrass is often referred to generically as Sudex. These grasses are the most heat and drought- tolerant cover crops typically grown in the Northeast. Sudangrass growth is easier to manage because the stems are narrower, it can be sown earlier than sorghum-sudangrass, and suppresses weeds better. These crops provide abundant root biomass, which is useful for increasing soil organic matter. Mowing encourages root growth. They suppress root knot nematodes and inhibit weed germination if densely sown.

A few management tips: (1) land preparation: prepare a clod-free seedbed. Avoid hard soil and wet spots. Do not plant just before a heavy rain, (2) seeding rate**:** 30 lbs/acre for biomass and nematode control, 50 lbs/acre for weed control, (3) seeding date: June through mid-August (sudangrass), July through mid August (sorghum-sudangrass). These cover crops require warm soil to germinate, (4) maintenance***:*** mow when 20-30 inches tall, leaving a six inch stubble. Two cuts in average can be conducted per season with sudangrass. Leave residue on the soil surface for weed suppression. Timely mowing is important because tall, fibrous plants are difficult to mow or incorporate, and (5) control***:*** big crowns decompose slowly, making it difficult to prepare a seedbed for small-seeded crops. Incorporate sudangrass if planting something else in the fall. Otherwise, mow for winter-killed mulch on the surface and till in early spring. Tall, unmowed sudangrass will winterkill, but is difficult to manage in the spring.

Table 1. Ideal Steps of Orchard Site Selection and Preparation and the Use of a Midsummer Grass (sudangrass) for an Orchard Planting

Time	Spring	Summer	Fall	Winter
Year 1 Site selection and Planning	Order trees Drainage evaluation and minor adjustments	Soil testing First lime application based on soil sample interpretation	Deep plowing	
Year 2 Primary site preparation	Application of phosphorous more lime (if needed), manure/compost Disc and rake Herbicide	Plant cover crop (Sudangrass) to add organic matter and prevent weed growth Mow @ 20-30” (at least 2 times per season) Seeding rate: 30-50lbs/acre	Deep plowing, ripping Fumigate (35 gallons/A of Telone C-17 or 25 gallons/A of Telone C-35)	

Year 3 Final preparation and planting	Disc or rototill Subsoil Install irrigation (mains) Plant trees Apply ¼ lb of Calcium nitrate after the soil settles. Apply another ¼ lb Ca nitrate 4 weeks later after shoot growth starts	Install irrigation lines		

Source: Steve Hoying and Terence Robinson - educational winter meetings conducted on Feb. 3 and March 24, 2011.

Summary: By implementing the use of cover crops you will reduce erosion of topsoil from slopes and suppress weed growth. Proper site preparation will often involve significant disturbance of the soil in order to add amendments (lime, phosphorous), install drain tile, etc. If a cover crop is not established soon after soil work is finished for the year, rainfall and melting snow can result in a significant loss of topsoil from the site. Sowing a cover crop will also help to prevent the re-establishment of weeds that the grower has worked hard to eliminate from the site.

Note: The sudangrass technical information was excerpted/modified from "Cornell cover crop guide for sudangrass". Cornell University. 2pp. Ver. 1.100716 (Björkman, T. and J.W. Shail. 2010).