



Switchgrass Production Guide

These guidelines are being established to ensure that the grower has the right management information to achieve maximum yields. They are based on the best information currently available but are subject to periodic updates and revisions as new information becomes known over time.

Site Preparation

Soil samples should be collected in advance from fields in which switchgrass will be established and submitted to a reputable soil testing laboratory for analysis. For crop code, you will want to use a Switchgrass for biomass production or similar protocol. After receiving results from your soil analysis, the proper amendments to your soil, by means of fertilizer and lime applications, should be made. Where possible, nitrogen should **NOT** be added during the establishment year.

Switchgrass is a small seeded species with little stored energy that devotes a significant portion of that energy to below ground growth during the first year, so eliminating weed pressure is essential to enhancing growth. Grass control prior to planting is extremely crucial as there are very few options once switchgrass has emerged to help you control any competition from grasses. Remember, this is a perennial crop with a long life expectancy so taking the time and care to achieve maximum emergence will pay off exponentially down the road. Ideally, this preparation will begin the fall prior to anticipated establishment.

If the field being established is an existing grass field:

- Mow at the lowest setting feasible during the last hay harvest or fall clipping of the pasture.
- Prior to winter dormancy and while plants are still actively growing, at least one non-selective herbicide application should be made. (Typically, this application would consist of glyphosate and if broadleaf weed competition is at thresholds you would want to add 2,4-D.) *
- The following spring once green-up has occurred, a second application either prior to planting or immediately following planting but prior to emergence, is required. *

This method will also work if the decision to establish is made after winter dormancy, but timing will be crucial to ensure success.

While no-till planting is optimal, in certain situations, it may be necessary or preferred to use conventional tillage practices to create a well-prepared seedbed. If this is the case, it is recommended you follow tillage operations with a cultipacker or other heavy roller to firm the soil. This will ensure you can control the depth of planting easier and receive good seed to soil contact.

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Planting

When establishing new acreage in the region for fiber production, switchgrass seed shall be a lowland variety. This ecotype is adapted to the environment and climate of this area and has been proven to provide more productive, higher yielding stands.

Due to the small size of switchgrass seed, a seed drill with a native seed or small seed box should be used to ensure accurate metering. If you do not own one of these drills, they can be rented from various entities depending on your location (your local NRCS office or Farmers Coop are common entities). It is imperative that proper drill calibration has been completed accurately before attempting to plant. A Genera representative will be able to assist you with this process if needed.

Switchgrass for feedstock production should be planted at a rate of **6.5 lbs. of pure live seed (PLS) per acre.**

Recommended planting depth is $\frac{1}{4}$ " **to no deeper than $\frac{1}{2}$ "**. These depths are usually more manageable in no-till soil conditions.

Typical planting dates for switchgrass in this region are from April to late May when adequate moisture is expected.

Fertilization

Following the establishment year, all fields should receive a minimum of 60 lbs. nitrogen per acre. Application should occur prior to May 15. Delaying application may result in uneven application if new standing biomass growth interferes with spreader distribution pattern.

If Urea is used as the nitrogen source, effort should be made to time application within two days of a significant rain event (>0.5 inches precipitation). If this timing is not possible, the use of Urea treated with a urease inhibitor may be necessary to prevent volatilization loss.

A yearly soil sampling regime is recommended for best productivity and yields.

Fields with soil test levels indicating phosphorus in the low range should receive 40 lbs. per acre Phosphorus as P2O5.

Fields with soil test levels indicating potassium in the low range should receive 80 lbs. per acre Potassium as K2O.

Phosphorus and Potassium fertilizers can be applied after biomass harvest in the fall/winter or mixed with Nitrogen fertilizer during the spring application.

Fertilizer requirements may be filled in part with animal manures when those are available, and application can occur during the above specified time. Nutrient load of manure to be applied must be analyzed by an approved laboratory to understand the amount of nutrient need being applied. Application of manures should be conducted per best management practices to prevent the contamination of surface and ground water. The remainder of crop nutrient requirements not met by manures should be filled using commercial fertilizers.

Weed Control

As mentioned previously, weed control is essential for the successful establishment of switchgrass. Fields should be scouted on a regular basis throughout the establishment year. If *broadleaf* weed pressure is at thresholds, an application of 2,4-D* may be made. Switchgrass must be establishing well, have reached the 4 leaf or greater stage, and showing secondary or adventitious roots. Another option that has become more popular recently is the use of mowing to forego another herbicide application on the fields. When mowing to control the weed pressure, careful consideration must be given to mower height. The goal is to mow just above the height of the growing switchgrass crop to set back the weed pressure and allow sunlight to better reach the switchgrass. This method has been used with great success. As with all crops, the success of both of these methods will depend on timely recognition of the weed problem and appropriate action.

In the years following the establishment year, switchgrass will be one of the first plants to green-up. If the stand has been cared for properly, it will outcompete most problem weeds and shade them out to stunt or deter their growth. If issues arise, the methods listed above can be used to get them under control.

If you elect to harvest on the earlier end of the harvest period, fields should also be scouted during the dormant post-harvest interval prior to green-up for winter annual weed growth. Winter annual weeds should be controlled at the appropriate time to maximize yield by preventing weed uptake of spring applied nitrogen.

Harvest

Switchgrass, when managed for fiber production, is harvested once per year. In the one-cut system, the switchgrass is harvested once **after** November 1 or **the first killing frost**, whichever comes first. Normally, harvesting can continue through the winter months and extend **through February**. A single harvest of switchgrass after the aboveground growth is killed by frost will reduce nutrient removal and fertility needs by allowing the plant to translocate a portion of the nutrients used during the growing year back into the soil.

Genera requires that any crop it purchases from our contracted growers must be in 4'x5' or 5'x6' **round bale** package and **net wrapped** at least twice as specified in the production contract.

We recommend the use of a mower conditioner/haybine for swathing of switchgrass. **Mowing height should be a minimum of 6 inches**. Bottom skid plates are available for some mowers or stop collars can be used on hydraulic cylinders to obtain the required cutting height. The taller stubble height will protect the crown of the plant, increase vigor going into the following spring, and help to ensure yield consistency.

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