

Warm Season Grass Biofeedstock/Forage Field Selection Criteria for demonstration projects

Fields to be planted in switchgrass, big bluestem or mixtures of warm season grasses. For all fields, check for a recent soil test, if none, take one as soon as possible. Apply lime according to a soil test. If the pH is above 5.8, no lime is necessary, or consider liming to pH 6.0- 6.5. For no-till seeding apply a maximum of 3 t/ac of lime. Fertilize to moderate P & K levels. Soils should be moderately well-drained or better

In order of easiest to establish:

1a) Following two or more years of corn with a good manager who feeds high quality weed free hay and haylage, has good weed control in his corn, does not use old hay as bedding, and uses liquid manure (less weed seeds if using sand or sawdust bedding). The field should be free of quackgrass, other cool season grasses, fall Panicum, and perennial weeds. Fertility should be at a moderate to high level with a pH in 6.0 – 7.0 range. If there are some cool season grasses, the farmer can spray with Roundup (RU), if there are perennial broadleaf weeds include 2,4-D, Dicamba or other registered broadleaf herbicides depending on the weed species. If field is smooth, it can be established no-till in mid May or by preparing the seed bed with conventional preparation (plowing, disking, harrowing, and cultipacking). If field is rutted or not smooth enough for hay equipment, till and cultivate field as if seeding alfalfa. Consider cultipacking before and after seeding to assure not planting too deep and achieve good seed-to-soil contact.

2a) Following small grain, evaluate the weeds and weed residue and investigate the weed control history of the field. Spray with RU and 2,4-D or other registered broadleaf herbicides depending on the weed species, and conventionally prepare the field as above or do no-till as above.

3a) Following well-managed hay with good soil fertility and pH, evaluate weeds, spray with roundup and 2,4-D or other registered broadleaf herbicides depending on the weed species, wait a week, and plow, disk, harrow, cultipack, seed, and cultipack again. If want to try no-till (not preferred) on well drained soil, the producer should kill sod as early as possible then seed when soil has warmed toward the mid to end of May. We will want to monitor (as always) for cool season grasses the following spring for a dormant RU spray.

Fields for next year:

1b) Same as option 1 & 2 above. Herbicide management or tillage should be done this year in small grain fields to prevent weeds from going to seed. If quackgrass is a problem in corn fields a fall RU application should be done, a touch up in the spring may be necessary.

2b) If the field is in a well-managed hay this year, take a soil test if there is not a recent one. If the P & K levels are moderate and pH is 5.8 or greater, take cutting or two **this** year, spray Roundup and 2,4-D or other broad leaf herbicide depending on the hay and

weed species, between Aug. 15 and Sept.1, allow sod to decay over winter, and respray if needed in spring. Then prepare the seedbed with conventional tillage or establish no-till. If lime is needed, lime to 6.0 – 6.5, and fertilize to moderate P & K levels. The landowner could spray and till the field in the fall and establish an oat cover crop by Sept.1, which may make no-till option easier in spring.

3b) If the field is an old hay field with low fertility and it has not been hayed last year or two, **do not use the field at all.** (It will take several years to get perennial weeds under control and the fertility restored)

If the field is an old hay field with low fertility and it has been in production recently (**should look for another site**), take a cutting of hay off or just spray when the hay is actively growing with RU and 2,4-D or Dicamba, or other registered broadleaf herbicide depending on the hay and weed species. The landowner may want to clip if hasn't been hayed recently, plant smother crop of buckwheat, plow the field again in the fall, plant to oats, and continue to evaluate for perennial weeds and spray when needed. The landowner may need to continue weed control and smother cropping the second year. Test the soil, lime to pH 6.0 - 6.5 and fertilize to moderate P and K levels. Beyond the scope of this project, if the field could be put into corn for a year or two fertility and weed control could be corrected during that time.

Farmer Criteria:

A large dairy will probably be too busy. If there is a retired farmer interested, that situation may work. The farmer must have good agronomic management skills, a willingness to experiment and the time and interest to commit to the project.

The farmer needs the following equipment: sprayer (could have the fields custom sprayed, but will have to pay the minimum charge for each application. There could be a problem with timing; we need to find out about the local custom operators),

A **good** tractor of an appropriate size and compatible hydraulic fittings if it will be used for a drill other than their own.

Good tillage equipment, mower, harvesting equipment, a seeder that can be calibrated**, or we could use The Big Flats PMC Truax drill that we loaned to Cornell for conventional seedings.

Look into local native grass drills Tompkins, Stueben, and Cayuga Soil and Water Conservation Districts (SWCD) have native grass drills, there are probably others. There may be a time conflict in using Big Flats PMC's small no-till Truax drill.

** If using the farmers or SWCD drill the seeder should be visually inspected for size, hydraulic fittings and to assure in proper working order and able to be calibrated, especially the native grass box. Some seed should be supplied for calibration. It may be advised to use one or two planters and have them calibrated and maintained and have them brought to the site to do the seedings. Although switchgrass does not require a native grass drill big bluestem does, the farmer probably does not have a native drill, so we probably should not use there drill unless required by the grant, to be used with the switchgrass. Since we will be planting 2 – switchgrass, 1 - big bluestem and a big bluestem and switchgrass mix it will require 4 separate calibrations.