Cornell University
Cooperative Extension

Agronomy Fact Sheet Series Fact Sheet #114

Emergency and Alternative Summer Annual Forages

Introduction

When spring planting is delayed due to challenging weather or an already established forage crop fails, farms may need to reduce animal numbers, purchase additional forage, or plant an alternative forage crop. After May 15-20 in New York, cool season grass seedings may not compete well with summer annual weeds, but annuals can be considered. June 5 is considered the end of alfalfa seeding window for the same reason. When selecting a summer annual to grow as an alternative forage, crop selection will depend on seed availability, soil moisture status, remaining growing season, any carryover of herbicide treatments, the intended use (for which animal species) and harvest and storage methods (dry hay, silage, grazing). In this factsheet, we present forage options for late spring or summer planting considerations.

Corn or Brown Midrib Corn

- Warm season annual grass. Select a short-season variety, for ear development, to target the R5.5 quality peak, or a longer-season variety, if ear formation is not important, to achieve the R1 quality peak.
- Plant by July 15; drill or use 15-inch row spacing; seed 50,000-60,000/acre at 1.5–2 inch depth.
- Harvest just prior to tasseling, about 60 days after planting; harvest for wet green chop (check for high nitrates) or after frost for silage or baleage.

Brown Midrib Sorghum Sudangrass

- Warm season annual grass.
- Plant by June 15 into 60ºF soils or warmer; drill; seed 65-70 lbs/acre at ½-¾-inch depth.
- Harvest at 36-48 inches and cut at 5-6 inches for good regrowth; cut again in about 40 days; wide swath for proper drying or chop at 65% moisture; prussic acid can be a concern if frosted; 15-16% crude protein; use as silage or baleage.

Figure 1: Regrowth of brown midrib sorghum sudangrass two weeks after the first cutting.

Spring Oats

- Cool season annual grass; use a rust-resistant variety if possible.
- Plant by mid-August; drill; 3-3.5 bu/acre at ⅛-¼-inch depth.
- Harvest in 60-75 days; use as silage, baleage; high in crude protein (~20%).
- Consider cutting high into a wide swath to facilitate drying at this time of year.

Spring Oats and Winter Triticale Mix

- Cool season annual grasses.
- Plant by August 5; drill 100 lbs oats and 80 lbs triticale/acre at 1¼–1½ inch depth.
- Harvest for fall oat forage and spring triticale forage; mow oats in the fall at a minimum of 4 inches above the ground to ensure triticale survival.

Figure 2: Harvest triticale at stage 9 (no heads visible but flag leaf fully emerged) for highest forage quality.

Pearl Millet

- Warm season annual grass; well-suited to warm, dry growing conditions.
- Plant early to late July; drill; seed 15–20 lbs/acre at ½-1 inch depth.
- Harvest in 55–60 days; use as silage or baleage.

Buckwheat

- Warm season annual; saturated soil at planting or in the two weeks after planting can stunt growth.

- Plant mid-June through mid-July; drill 50–60 lbs/acre at 1–2 inch planting depth.
- Harvest at flowering, 5–6 weeks after planting; use as silage or baleage.

Teff

- Warm season annual grass; well-suited for dry growing conditions.
- Plant June through late July; tiny seed, needs a firm, fine seedbed; drill or use a cultipacker seeder; seed 4–5 lbs/acre at ⅛–¼ inch depth.
- Harvest 50–55 days after planting (at 3-4 inch minimum mowing height) at early boot stage and then again 40-45 days later; use as silage, baleage or dry hay.

Figure 3: Teff can be harvested for silage, baleage or dry hay.

Pea and Small Grains Mixture

- Cool season annuals; oats and peas do not typically overwinter in New York.
- Plant before May 1; 30–45 lbs/acre for the small grain (oats, barley, wheat, triticale) and about 174,000 pea seeds/acre (pea size varies considerably); adjust seeding rate down if moisture is limiting and seed cost is higher; plant 1–1.5 inch deep.
- Harvest based on maturity stage of the small grain: late boot stage for lactating dairy cows and soft dough stage for heifers, dry cows, and beef cattle; unless N is limiting, adding peas to small grains will have minimal effect on total yield but will improve overall forage quality and palatability.

Forage Radish, Rape, Kale, Turnip

- Cool season annuals; will not overwinter in New York and will emit a strong odor when decomposing.
- Plant late summer (soil temperatures >50°F); 2–8 lbs/acre depending on planting method and companion crop; needs firm, well-prepared seedbed; drill or seed with a cultipacker seeder at ¼–½ inch depth, up to 1 inch in dry conditions; plant with an overwintering grass to capture nutrients from the decomposing tissue in spring.
- Graze before heading for best forage quality; introduce animals slowly and/or supplement with dry hay to avoid health disorders.

In Summary

The forages listed in this factsheet can provide an alternative or emergency forage during challenging years. To select the crop that best fits farm goals, consider seed availability, costs, and seeding and harvest timing, as well as the forage type and quality needed for the animals on the farm.

Additional Resources

- Nutrient Management Spear Program Fact Sheet Series: http://nmsp.cals.cornell.edu/guidelines/factsheets.html. Includes agronomy factsheets on Brown Midrib Sorghum Sudangrass (#14 and #26); Triticale (#56); Teff (#24 and 46); Forage Radishes (#64).
- Alternative Crops for Alternative Crops? 2019. Tom Kilcer. Advanced Ag Systems Crop Soil News. https://advancedagsys.com/wp-content/uploads/2019/06/July-2019-late-late-forage.pdf
- Buckwheat for Forage. Thomas Bjorkman and Larry Chase. Cornell University Extension. http://www.hort.cornell.edu/bjorkman/lab/buck/guide/forage.php.
- Pea and Small Grains Mixtures. 2014. Dan Undersander. University of Wisconsin Extension. https://fyi.extension.wisc.edu/forage/files/2014/01/PeaSmallGrainFOF.pdf.
- Use of Brassica Crops in Grazing Systems. 2017. Dan Undersander. University of Wisconsin Extension. https://fyi.extension.wisc.edu/forage/files/2017/03/Use-of-Brassica-Crops-in-Grazing-Systems.pdf.

Disclaimer

This fact sheet reflects the current (and past) authors' best effort to interpret a complex body of scientific research, and to translate this into practical management options. Following the guidance provided in this fact sheet does not assure compliance with any applicable law, rule, regulation or standard, or the achievement of discharge levels from agricultural land.

For more information

Cornell University Cooperative Extension

Nutrient Management Spear Program
http://nmsp.cals.cornell.edu

Kitty O'Neil, Mike Hunter, Jerry Cherney, Joe Lawrence, Tom Kilcer, Thomas Bjorkman, and Quirine Ketterings

2020