



## Late Season Forage Plantings

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Having had the wettest spring on record there are many fields that still remain unplanted. Many farmers are asking about alternative forage options to secure enough feed for the year. Although prime time to plant corn has passed there are still options available to secure high quality forage for the winter months. Below is an outline of options for late season forage production.

### HOW LATE CAN I PLANT CORN

**Table 1. Average GDD accumulated in various VT locations\*.**

Location	Average GDD	
	June - Sept.	July - Sept.
Rutland	1880	1436
Westford	1887	1433
Enosburg	1950	1506
Addison	1981	1500
Alburgh	2036	1550
Vernon	2048	1556

\*Historical averages based on 30 years of data collection (1975-2000)

At this point in June, it is not too late to plant corn silage. However, it is important to be selecting hybrids that will be able to mature to the proper harvest moisture by fall. Growing Degree Days or heat units are calculated for each day starting the day after planting. The "length of growing season" of various hybrids is directly related to their GDD requirements - long-season hybrids require more GDD to reach maturity than shorter season ones. Heading into June, hybrids with GDD requirements of 1900 or less should be planted. Average GDD accumulations for specific locations in Vermont are shown in Table 1.

Over the last 5 years UVM Extension has conducted corn trials across the state of Vermont. Throughout the years there has certainly been a diversity of weather conditions to be able to evaluate corn silage yield and quality.

**Table 2. Yield and milk per acre of short season corn grown in East Wallingford, VT.**

Hybrid	DM	Yield	Milk
RM	at harvest	35% DM	per acre
Date of Planting: May 26th, 2009			
Accumulated GDD: 1817			
80	38	15.9	13933
88	32	16.1	15151
90	31	19.0	17483
Date of Planting: June 2nd, 2010			
Accumulated GDD: 1950			
69	33	18.5	22,700
80	31	19.3	22,100
86	31	22.0	24,900

Through this research, it has been observed that corn planted in early June can still produce significant yield and quality. In 2009 and 2010, trials conducted in East Wallingford, VT have shown that corn planted in early June can still yield upwards of 20 tons. However, the number of GDDs accumulated from June to Sept. will highly impact yields obtained from short season corn. Of course precipitation, hybrid selection, fertility, and other factors will also greatly influence yield. Table 2 exhibits some of the results from these short season corn trials.

Another research project conducted by UVM Extension evaluated corn silage yields and quality planted on May 20, June 2, June 24, and July 6. This growing season brought cooler temperatures and higher than normal rainfall patterns across the region. It is important to note that a 95 RM hybrid was

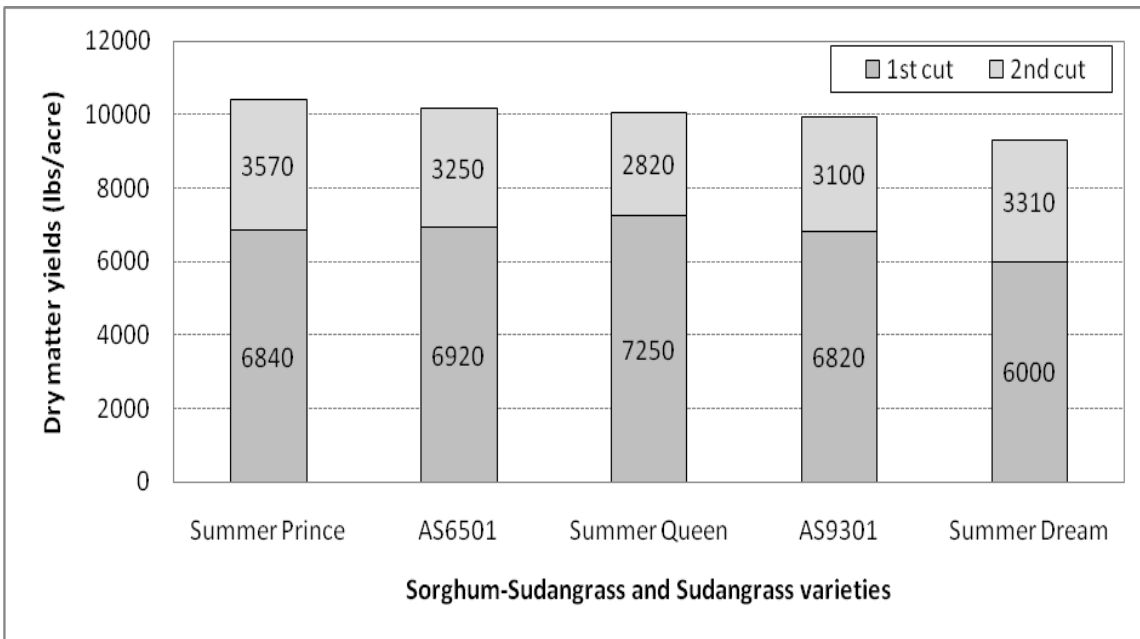
planted in May and a shorter season 85 RM hybrid was used for all other plantings. Interestingly corn planted as late as June 24<sup>th</sup> was still able to reach proper moisture for corn silage harvest. Again hybrid maturity selection and accumulated GDD during the remaining growing season will highly influence the ability to obtain decent yields and quality this late in the season. Table 3 highlights some results from the experiment.

**Table 3. Yield and quality of corn silage planted from late May to early July.**

Planting Date	Accumulated GDD	DM harvest	Yield @ 35% DM	Forage Quality Characteristics		
				TDN	NEL	NSC
		%	t/a	%	Mcal/ lb	%
20-May	1976	35.6	19.9	72.2	0.75	35.3
2-Jun	1756	35.6	19.1	72.1	0.75	34.9
24-Jun	1600	34.0	17.4	71.4	0.74	31.4
6-Jul	1457	28.0	16.4	70.1	0.71	26.1

### ANNUAL WARM SEASON GRASS OPTIONS

Other warm season annuals can also provide excellent forage yields and quality. There are several warm season grasses that can be grown including pearl millet, Japanese millet, sorghum, sudangrass, and sorghum-sudangrass hybrids. These forages produce the highest quality feed when managed under a multi cut or graze system. These forages should be seeded at 40 – 50 lbs to the acre and harvested whenever they reach a height of 36”. If planted by early July, there is still potential for two cuttings of forage. Warm season grasses will require about 50 lb of nitrogen per harvest. However, these forages love heat and growth will slow once fall arrives. UVM Extension summer annual forage trials have observed sorghum-sudangrass yields of 5 tons DM per acre. These trials were planted in early June with forage harvests every 30 days.



**Figure 1. 2010 yield of sorghum-sudangrass varieties in Alburgh, Vt.**

### SMALL GRAIN OPTIONS

A small grain/field pea mixture is a standard mix that will produce high quality forage. Since small grains prefer cooler temperatures the yield will be compromised by planting during the summer months; therefore, small grains may be a good option if planting is delayed until later into the season. Small grains (60 lb/acre) such as oats, barley, or triticale with the addition of field peas (50 lb/acre) will be ready for harvest between late August

and early September. Straight grains should be seeded at 100 to 120 lb/acre. Triticale grows best under warm conditions and improved forage type varieties are high quality. Research from the University of Wisconsin has reported yields between 1.25 and 1.50 tons of dry matter per acre when small grains were planted in July. Small grain/pea mixes should be harvested when the small grain is at late boot stage (when the head of the plant is barely showing). If there is an anticipated need for forage the next spring, winter wheat, triticale or rye could be planted following the sorghum-sudangrass (or other summer annual forage) and harvested in late May the following year for feed. Studies conducted at UVM have reported spring forage yields as high as 3.25 tons of DM per acre. Table 4 contains results yield and quality information for winter wheat, triticale, and barley harvested in the boot stage.

**Table 4. Forage yield and quality of winter small grains harvested in the boot stage.**

Small grain	DM Yield	TDN %	NEL Mcal/lb
Winter Barley	3296	65.1	0.66
Winter Triticale	5586	62.9	0.62
Winter Wheat	6462	61.3	0.58

## HAY CROP SEEDINGS

Many planned hay crop seedings have also been delayed due to this spring's weather. One concern when planting hay crops in June is that emerging seedlings become exposed to mid-summer heat and moisture stress as well as competing summer annual weeds, all resulting in a poor, spotty stand. Delaying the hay crop seeding until early to mid-August allows for better growing conditions for seedling growth and development and, generally, there are far fewer weeds germinating this time of year. Timing is important. Emerging seedlings need about six to eight weeks of growth to be prepared for winter survival. Some forage species that express slow seeding emergence and development (such as birdsfoot trefoil or reed canarygrass) are not recommended for late summer seedings. Alfalfa, red or white clover, orchardgrass, tall fescue, timothy, perennial ryegrass can be successfully established with a late summer seeding. It is usually recommended to not use a companion or nurse crop (such as a small grain or Italian ryegrass) with a late summer forage seeding since fall conditions are quite favorable for their growth, making them too competitive with the emerging hay crop. Also, if conditions are extremely dry in August, then it may be best to postpone the seeding until the next spring.

It has definitely been a tough spring; however the best part of the growing season has yet to come. There is still time to produce some high quality and yielding forages this season. If you have any questions please feel free to contact Dr. Heather Darby at [heather.darby@uvm.edu](mailto:heather.darby@uvm.edu) or (802)524-6501 or Dr. Sid Bosworth at [sid.bosworth@uvm.edu](mailto:sid.bosworth@uvm.edu) or (802) 656-0478. All UVM Extension reports can be viewed at [www.uvm.edu/extension/cropsoil](http://www.uvm.edu/extension/cropsoil).

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