

Understanding Different Maturities in Forage Grasses and Why It Matters

Scott Wohltman, La Crosse Seed

Cool season grasses are important forage species for dairy and other livestock producers in all parts of the Midwest. These grasses offer the potential for moderate to high yields as well as high quality. One major challenge to producing high quality forage from cool season grasses is their relatively short harvest window because forage value can decline rapidly in a relatively short amount of time. As forages approach maturity, dry matter increases at the expense of forage quality.

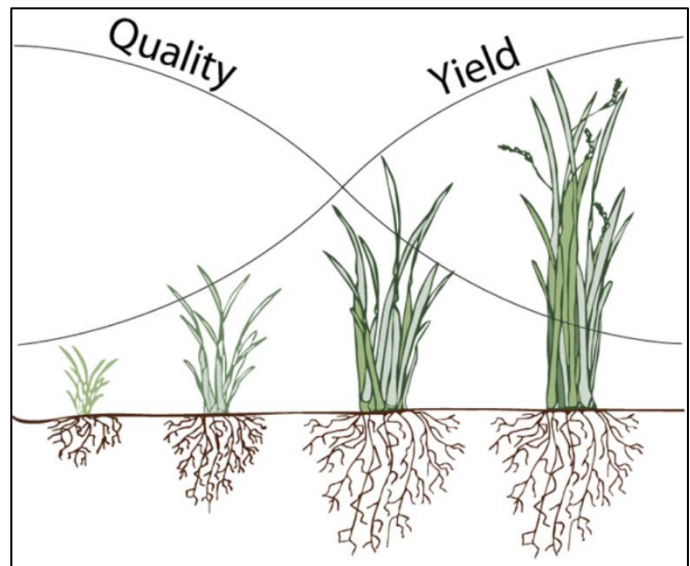
To manage this challenge, breeders have worked to widen maturity ranges. Consequently, producers began growing grasses exhibiting a wide range of maturity stages or schedules. In recent studies at the University of Vermont, more than 30 orchardgrass varieties and over 50 timothy varieties tested showed a wide range in maturity. For instance, over a two-year span, the orchardgrass varieties tested differed in their “heading date” – defined as the date when a grass has at least five tillers in the early head stage – by a whopping 40 days! Timothy maturity differences spanned over 30 days.

Selecting the proper maturity of grasses paired with legumes is very important when managing for yield *and* quality. Consider orchardgrass, which is commonly paired with alfalfa or other legumes either at planting or even one to two years after seeding. This is usually done to increase forage tonnage, ease silage and grazing systems, and help deliver more consistent production through the year, with the potential benefit of extending stand life.

When pairing orchardgrass with alfalfa, it is imperative that the maturity of the grass coincides with the cutting schedule and to some degree, the Fall Dormancy (FD) of the alfalfa variety. FD is a measure of how quickly alfalfa enters and breaks dormancy in fall and spring, and correlates with how quickly it recovers after each cutting. A higher Fall Dormancy rating indicates less dormant alfalfa, which equals less time between cuttings, and that greatly impacts the management requirements of the producer.

The last thing a producer wants to see is orchardgrass headed out in the spring two to three weeks or more prior to the alfalfa being ready to harvest. “Potomac” orchardgrass is a common variety that has been around a long time. Likewise, many older varieties of orchardgrass tend to be early maturing. Recent breeding efforts have yielded new varieties that offer the wide range of maturity times as revealed in the Vermont study.

Timothy is another commonly used cool season species, and usually earlier maturing varieties are preferred. It is hard to believe the most commonly used Climax variety was first identified in the early 1700’s. Many familiar, traditional timothy varieties are even later in maturity. Research and breeding



University of Minnesota Extension

with timothy in the last 20-30 years has brought many new, earlier heading varieties to the market. But even earlier maturing varieties of Timothy are not comparable in timing to alfalfa or many other grasses for that matter.

Another species to consider is the “queen of forage grasses” – perennial ryegrass. Perhaps not as well known, perennial ryegrass can also vary greatly in date of heading. In areas of the country where perennial ryegrasses thrive, it is crucial for producers to time their grazing cycles or harvest schedules correctly based on their forage goals. If tonnage is the objective it may make more sense to plant an earlier variety, assuming the grower can capture that growth in an opportune manner. Ryegrass is widely known for its overall quality. However, if an earlier maturing variety is planted and not monitored closely, quality will be greatly diminished. Later maturing options offer increased harvest flexibility, but may compromise yield.

Forage grasses make a ton of sense with producers across the country. With the relatively newer relative forage index (RFQ) becoming more common as a means of evaluating forage quality, the value of quality grasses becomes clear, even compared to alfalfa. In the past, forage grasses were considered inferior to legumes due to their higher NDF levels. However, fiber in grasses is typically more digestible than fiber in legumes like alfalfa – and RFQ measurements take this into account.

It is another reason to look at forage grasses, even in hay production systems. Like many things however, it comes back to the producer and how the farm is managed. Spreading out maturities of perennial grasses lessens risk and workload and ensures that grasses are given the opportunity to reach their highest quality. However, when forage composition becomes too intricate or even convoluted in the field, it can lead to increased complexity when it comes to dialing in the correct timing for fertilizer applications, grazing cycles, and harvest schedules. Understand your expectation and pick your varieties accordingly.

The take away is clear – consider the production and management goals and then match the varieties accordingly. If your forage seed supplier cannot tell you the maturity of the products they offer, it probably means they are not too serious about selling a sound solution.

Consider the text and chart from DLF below which highlights work in the industry to help make purchasing decisions easier for producers today.

“...traditional nomenclature of early, medium, and late is no longer effective in classifying and comparing the relative reproductive maturity of varieties within a species. A producer attempting to select a correct variety for his/her operation is challenged to compare the maturity of varieties among different forage grass companies. Additional challenges arise when comparing reproductive maturity between species. Interspecies correlation is lacking. An “early maturity” variety in one species may actually be chronologically later in maturity than a “late maturity” variety in another species.”

North America Forage Maturity Index

Species	1	2	3	4	5	6	7	8	9	10	11	12	13
Orchardgrass		Early	Medium	Late									
Forage Tall Fescue	Very Early	Early	Medium	Late									
Meadow Fescue			Early	Medium	Late								
Festulolium													
Annual Ryegrass Westerwold	Early	Med-Early	Medium	Med-Late	Late								
Annual Ryegrass Italian	Early	Med-Early	Medium	Med-Late	Late								
Intermediate Ryegrass					Early	Med-Early	Medium	Late					
Perennial Ryegrass					Early		Medium			Late			
Timothy										Early	Late		
Kentucky Bluegrass			Early	Medium	Late								
Reed Canarygrass							Early	Medium	Late				
Prairie Bromegrass			Early	Medium	Late								
Alfalfa (FD3-5)				Beginning Bloom									
Red Clover				Beginning Bloom									
White Clover				Beginning Bloom									

Maturity Index Legend

1 2 Maturity Index [1=Earliest, 13=Latest]

Early/Medium/Late Maturity range of available varieties within each specie

Traditional US maturity classification

