

Timothy Pasture Seed

Timothy Pasture Grass Seed - Timothy (*Phleum pratense*) is a perennial cool-season grass, relatively late-flowering, best adapted to cool, humid climates. At a given location, heading and blooming dates for improved cultivars may vary by as much as 7-10 days. Timothy normally matures 2-3 weeks later than tall fescue, orchardgrass, and smooth brome grass. This feature makes it an ideal grass for late-spring grazing, or for hay harvesting since the climate is more favorable for field curing.

Timothy is very palatable, consequently it is often selectively grazed and soon disappears when seeded with less palatable species. At certain stages of development, timothy is intolerant of intensive grazing for reasons explained below.

Plant Structure

Timothy is of medium height, within the range of 30-40 cm at heading stage. However, in isolation, the flowering culm may reach 80-90 cm in length. During the spring season, as shoots advance toward maturity, the lowest stem internode(s) become enlarged and form a storage organ called a "haplocorm". The haplocorm is usually comprised of two shortened stem internodes which gradually enlarge concurrently with the build up of food reserves. By the late boot to early-heading stage, adventitious buds in the haplocorm give rise to a new cycle of tillers. This regrowth is commonly called aftermath. In some literature it is called rowen.

Management Precautions for Early Growth

As with most grasses, the over-wintering tillers resume growth when the climate is favorable. With advancing maturity, individual shoots exhibit growth stages. They include tillering, transition from vegetative to reproduction, (late boot, early heading of seedhead, and flowering). These developmental stages need to be recognized when making management decisions.

The tillering stage represents the initial spring growth. The main growing point (apical meristem) of the shoot is in a vegetative stage, producing new leaves. After a suitable period of development, this growing point is gradually transformed into a floral bud which soon produces a rudimentary seedhead. The shoot has entered the transition stage of development. Thereafter, leaf formation ceases and the leaf number is fixed.

The transition stage can be identified by splitting a shoot with a sharp blade in order to inspect the growing point. By this time the lower-most basal internode of the developing culm has commenced elongation, possibly raising the rudimentary seedhead together with the underlying meristematic zone to a grazing height. This vitally important meristematic zone contains cells which account for the central stalk (culm) as well as cells which account for the leaves. This zone represents the preferred regrowth mechanism if haplocorm buds have yet formed new tiller initials.

It is self-evident that timothy, as well as many other grasses, should be carefully managed during early transition. If a high percentage of the shoots are in this developmental stage, it is wise to avoid wholesale destruction of this shoot zone, as might occur under "management intensive grazing" (MIG). Lenient grazing is advised until such time as haplocorm buds are capable of producing prompt competitive regrowth.

The appearance of new shoots indicates that food reserves have been restored and that a new regrowth mechanism is ready to function. New shoots also signal the time to initiate intensive grazing and for storing the forage from ungrazed pastures.

Under-grazed pastures should be clipped at early-heading with a high blade setting so as to minimize destruction of vegetative shoots. Livestock relish the clippings at this stage of maturity. Additionally, it is wise to prevent seedhead development because plant hormones associated with flowering temporarily suppress new tiller growth. Destruction of seedheads promotes earlier aftermath growth ensuring development of new roots prior to the advent of arid conditions.

Management Precautions for Second Growth (aftermath)

Given approximately five weeks deferment from further defoliation, aftermath shoots start culm development. Stem internodes in the base of the shoot commence to elongate, elevating the meristematic growing point to a grazing height. The growing point may exhibit a developing seedhead, thus the leaf number is again fixed. If it remains vegetative, leaf number is indeterminant. As previously described, for the initial growth, the aftermath has reached the transition stage of development.

Prior to internode elongation, the aftermath can be grazed with minimal risk provided sufficient leaf blade tissue remains in the stubble. Photosynthesis in the leaf blade canopy largely negates the need for stored food reserves. However, when internodes start to elongate, the meristematic growing point may be destroyed. When this occurs, the vigor of subsequent regrowth varies with the readiness of haplocorm to produce another cycle of tillers. If the bud-bearing region is not active, or if a new root system is not yet well established, the grass either goes dormant or perishes.

Vegetative features of Timothy

Leaf blades are rolled (as opposed to folded) in the shoot whorl. A prominent membranous ligule arises from the collar zone at the base of the blade. Early spring growth is comprised chiefly of leaf blades because sheath elongation commences only after the blade is well formed. This growth habit provides a measure of grazing tolerance because the meristematic collar zone of most of the leaves is nested safely below the grazing height. Immature leaves severed above the collar continue development due to cell division and expansion in the intercalary meristem located in the collar region.

Frequent moderate defoliation, as practiced in turf management, tends to suppress sheath elongation. This may provide a measure of flexibility in grazing management, however, it does not favor deep rooting or restoration of food reserves necessary for winter hardiness.

Seedheads, spikelets, and florets

The seedhead is a compact panicle in which single-floreted spikelets are supported by very short panicle branches. These diminutive branches closely resemble short pedicels found on some raceme inflorescences. The timothy panicle is so compact that it is sometimes confused as a spike.

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