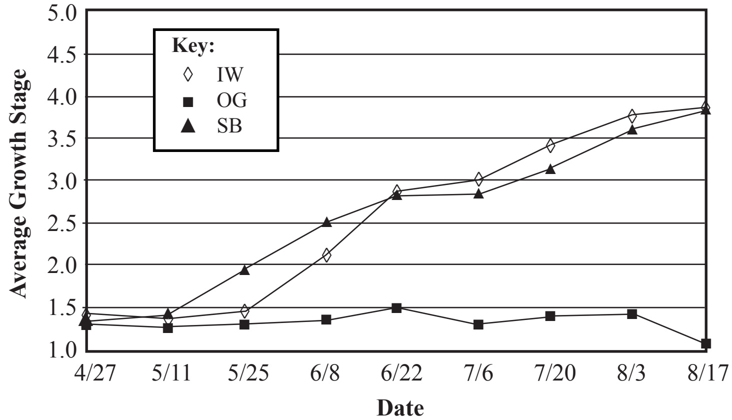
# Managing the Spring Flush

*by Alexander Smart, South Dakota State University*

Cool-season grasses dominate much of the north central United States. The temperature range for optimum photosynthesis for these species occurs between 60-75ºF. Outside of this range, cool-season grasses grow more slowly. Growth typically begins in mid- to late-April in this region followed by a rapid growth phase in mid-May which continues through mid-June (Figure 1).

**Figure 1.** *Average tiller development of intermediate wheatgrass (IW), orchardgrass (OG) and smooth bromegrass (SB) in an eastern South Dakota pasture. Average growth stage: 1-1.9 is vegetative (no stem), 2-2.9 is vegetative (with stem elongation), 3-3.9 is reproductive, 4-4.9 is seed ripening.*




During the rapid growth phase, forage accumulation can quickly outpace animal intake, resulting in poor utilization and low harvest efficiency by grazing livestock. Growth slows considerably in the heat of July and August (Photo 1).

If moisture is adequate, considerable fall regrowth is common as temperature and sunlight intensity decrease in early September through mid-October. Not all grass species exhibit the same growth pattern. In an eastern South Dakota pasture experiment, orchardgrass tended to stay vegetative compared to smooth bromegrass or intermediate wheatgrass (Figure 1). A late maturing variety of orchardgrass was used which may be one reason few reproductive heads were seen.

### Strategies to Manage Excess Forage Growth

Several strategies exist to manage the rapid growth phase of pasture species. These strategies have unique challenges depending on the suitability of the landscape for forage harvest by machine, the existing layout of fence and watering systems, and age class of livestock and their liquidity.

**Do Nothing**. On one end of the spectrum is the option to do nothing about the spring flush. This strategy is commonly practiced under season-long continuous grazing. The excess forage growth that occurs in the spring essentially becomes stockpiled forage for later use when forage growth is severely limited by high temperatures and low rainfall. Under this scheme, harvest efficiency tends to be 25% of total forage production with moderate grazing intensity.

**Photo 1.** *Sampling cool-season pasture in mid-August. Standing herbage lacks green color because leaves have dried or senesced.*

**Rotational Grazing**. Rotational grazing systems alone can be used to manage the spring flush. Under rotational grazing, stocking density per paddock becomes much higher than under continuous grazing and is directly proportional to the number of pasture subdivisions. Generally, the days spent per paddock are few when the growth rate of the pasture is the greatest and longer when the growth rate slows down. This faster rotation through the paddocks allows the cattle to "top" the upper portion of the canopy (Photo 2). This is sometimes called "flash" grazing. Later grazing cycles may have grazing periods of a few days to a week when the growth rate slows down. Harvest efficiency increases of 25-35% can be achieved through the use of rotational grazing compared to season-long continuous grazing.

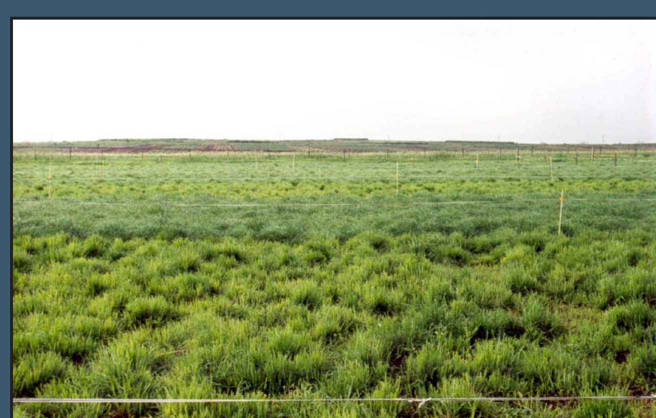


**Photo 2.** *Flash-grazed paddocks early in grazing season. Cattle removed upper portion of canopy resulting in high harvest efficiency.*

**Intensive Early Stocking**. Other options are strategies that employ intensive early stocking (IES) of livestock which can then be sold or moved to other pastures later in the grazing season.

Intensive early stocking is a practice that originated in the tallgrass prairie regions of the Flint Hills of Kansas and Osage Hills of Oklahoma. The concept is to double stock (or triple stock) yearlings during the first half of the grazing season and then sell them and allow the pasture to rest for the remainder of the season. It can be practiced using continuous or rotational grazing systems. Intensive early stocking applies a heavy grazing pressure so the forage remains in the vegetative stage maintaining high average daily gains. Under the same stocking rate, IES has been shown to produce 20% more beef/ac than season-long continuous grazing. The practice is less efficient further westward from the tallgrass prairie to the mixed grass prairie because of limitations in precipitation.

**Mechanical Harvest**. Another strategy to manage the spring flush is to designate a portion of the pasture for mechanical harvest. Using this scheme, the manager can rotate the cattle through the rest of the paddocks to efficiently harvest the forage using a higher grazing pressure with the first 1 or 2 grazing cycles.

After sufficient recovery time has occurred, the paddock(s) cut for hay would have enough regrowth to use in the next grazing cycle.

The advantage of using this system is the increased harvest efficiency from the hay harvest plus the efficiencies associated with rotational grazing compared to season-long continuous grazing. In order for this to work properly, the pasture must be suitable for mechanical harvest (free of rocks or poorly drained areas). Managers must have knowledge of the correct proportion of area to be harvested as hay, and have sufficient skills in rotational grazing.

In summary, the spring flush can be managed using different techniques that involve haying, rotational grazing, or intensive early stocking. Each technique comes with certain challenges and knowledge base to successfully apply them and must fit with the producer's environmental and financial objectives.