Perennial Ground Covers in Corn Production

Cellulosic feedstocks are a key component in achieving energy independence for the United States. Among potential feedstocks, corn stover has received much of the attention due to its abundance and accessibility. However, its importance to soil conservation in cropping systems may restrict the harvestable amount, especially in poorer soils and areas prone to erosion. This problem certainly isn’t new as researchers have long sought better management for corn silage removal for the same reasons.

One of the strategies that has been employed to allow greater stover removal is to grow a ground cover (e.g., grasses or legumes) for soil protection during the season. Of the higher-yielding systems that have been studied, cool-season grasses and legumes are usually either seeded later in the spring or established prior to corn planting and then chemically or mechanically suppressed. Based on previous studies, it appears that a key to successful ground cover systems is linked to limiting competition during early corn development. This time period is often referred to as the critical period of weed control. Therefore, later seeding, or early suppression of existing covers, is a common component to higher-producing ground cover systems.

Given the number of grass and legume species and the wide range of growth habits among species, one of the obvious needs is to determine which species support the highest level of corn production in a production system. To answer this question, E. Scott Flynn with Iowa State University, now with Dow AgroSciences and colleagues evaluated 35 different species of grasses and legumes in strip-tilled corn plots over a three-year period in Iowa. Results are reported in the March–April 2013 issue of Crop Science. Measurements of corn height, yield, and...