

## Some Points about C Sequestration in Tame Forage Crops

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Grassland technology normally thought of as beneficial to production may or may not coincide for C sequestration. Grasslands can be managed as CO<sub>2</sub> sinks, but as in other cropping systems there are weak points which must be overcome. Determining these weak points through studying and analysing CO<sub>2</sub> exchange of the forage establishment system has given us some clues about managing for C- sequestration.

Choose species that have drought and heat tolerance. Understand what this means for your growing area. Species that maintain green leaf area in regions with intermittent drought can resume growth quickly after short periods of drought and high temperatures, thereby sustaining productivity and CO<sub>2</sub> uptake..

Choose species that initiate growth early in the spring and maintain growth late into the season, so that length of the growing season is maximized and dormant season minimized.

Choose species with rapid regrowth potential after cutting or grazing as they are likely to minimize lag periods of growth in which CO<sub>2</sub> release predominates.

Management procedures that ensure vigorous spring growth are important. These are procedures that ensure large and vigorous tillers with adequate carbohydrate reserves in the spring. Overgrazing of pastures in the fall and harvest during periods critical to winter survival are issues to overcome.

Management procedures that enhance rapid canopy development during the seedling year are important. The seedling stand is vulnerable to harvest and overgrazing, as it is a year of slow growth and development.

Poor stand establishment is probably just as important as how establishment occurs. They are related, but half a stand to begin with prolongs the problem of poor canopy development. Find a reliable procedure and use it. Minimize cultivation, if possible.

Do not overgraze. CO<sub>2</sub> losses, as a result of overgrazing, may be as large as using summerfallow. Managed grazing methods, where sufficient residues are left to ensure regrowth and maintenance of productive species are essential. Using stocking rates recommended for your climatic area, soil type, species used and grazing method are essential.

Adequate levels of available soil nitrogen and other essential nutrients generally have positive impacts on C- sequestration. The source of nutrients (commercial fertilizer vs. legume source) may or may not be as important as the optimum quantities of all soil nutrients.