Available Carbohydrate Fractions in the Stem Bases and Seed of Timothy, Smooth Bromegrass, and Several Other Northern Grasses

Hideo Okajima and Dale Smith

CARBOHYDRATES are the primary source of energy stored in the vegetative storage organs of perennial grasses and are used to carry on various growth responses during the life of the species. A knowledge of the components of the available carbohydrates in the storage organs of perennial grasses is important to an understanding of their growth responses.

De Cugnac (1) pointed out in 1931 that two groups of perennial grasses can be distinguished according to the type of reserve carbohydrate stored in the overwintering vegetative parts. One group is characterized by the accumulation of fructosan together with sucrose. The second group does not form fructosan but stores sucrose and starch. The starch-containing grasses appear to be native to the semi-tropical or tropical latitudes, while fructosan-containing grasses appear to be native to the temperate latitudes. This later conclusion has been confirmed by Weinmann and Reinhold (12).