



Effects of grazing managements on photosynthetic carbon allocation in temperate grasslands in North of China

Yuqiang Tian

State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, Beijing China
(tyq@bnu.edu.cn)

Grazing is an important human activity and the different grazing managements would affect the carbon allocation differently in temperate grasslands. The aim of this study was to quantify the allocation and transfer of photosynthetic carbon in different carbon pools in the grasslands by using ^{13}C pulse labeling technique, and to clarify the response of carbon allocation to different grazing managements (ungrazed, rotational or continuous grazed). We found that grazing managements would change the photosynthetic carbon allocation from aboveground to belowground. The photosynthetic carbon allocated to aboveground pool showed a decline as the increase of sampling days going, while the photosynthetic carbon allocated to the aboveground plant respiration and belowground parts rose significantly. Ungrazed grasslands allocated most of photosynthetic carbon (54.64%) to belowground, while rotational (54%) or continuous grazed grasslands (46.3%) allocated most of photosynthetic carbon to aboveground. Grazing managements changed the photosynthetic carbon transfer and allocation in the pools of root and soil organic matter (including microbial biomass, dissolved organic carbon, other soil carbon and soil respiration).