

Leaf area development, dry weight accumulation and solar energy conversion efficiencies of *Phaseolus vulgaris* cv. GLP-2 were investigated under two soil moisture levels in two contrasting seasons near Nairobi, Kenya. The experiment confirms that dry weights and yields of *Phaseolus vulgaris* are limited by a drought induced decrease in leaf area, leading to less radiation interception as a source for assimilation. However, photosynthetic efficiency in *Phaseolus vulgaris* decreased and contributed to these effects. Decreases of economic efficiency as obtained in the second season, where stress lasted much later into the season, showed that a drought limits the partitioning and translocation of assimilates to the seeds of *Phaseolus vulgaris*.