Estimation of primary production of subhumid rangelands from remote sensing data.

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Abstract.
Above-ground Net Primary Production (ANPP) is the main determinant of forage availability and hence of stocking density. A tool to track the seasonal and interannual changes in ANPP at the paddock level will be very important for livestock management. We studied the relationship between field ANPP data and the Normalized Difference Vegetation Index (NDVI) for rangelands of the Flooding Pampa of Argentina using spectral data provided by sensors on board of two satellites: NOAA/AVHRR and Landsat TM. The relation-ship between NDVI and ANPP was linear both for data derived from NOAA/AVHRR and Landsat TM. Changes in ANPP accounted for a large proportion of the temporal and spatial variation of NDVI: 71% of NOAA/AVHRR data and 74% of Landsat TM data. By inverting these models, ANPP may be inferred from NDVI data at a seasonal and paddock scale. NOAA/AVHRR data captured better the seasonal variation in ANPP and were less sensitive to local variations than Landsat TM data. In contrast, Landsat TM data were more sensitive to inter-site differences in primary production, except for the winter months. Thus, combining information from these two sources offers a good alternative for monitoring rangeland production at high temporal and spatial resolution.