Publications

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Establishing Crop Acreage Flexibility Restraints for Subregions of the Texas High Plains

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- Full Text

Cropping pattern shifts in many aggregate linear programming (LP) models need to be constrained due to institutional, marketing machinery, and price uncertainty factors. The purpose of this study was to estimate constraints which are referred to as flexibility restraints for major crop acreages in subregions of the Texas High Plains for use in a LP model that was developed to derive water and other input demand.

Alternative estimating models for establishing acreage flexibility restraints were developed using methodology and model formulation presented in the literature. The results of these models in estimating flexibility restraints were evaluated using statistical measures and subjective analysis.

Models which were analyzed ranged from a simple linear regression model in which the current year's acreage is expressed as a function of last year's acreage to a multiple regression model in which economic and climatological variables were considered. The multiple regression model as formulated and estimated did not provide satisfactory results. However, as in many of the earlier studies the simpler models did provide acceptable performance. From among the simpler models one was selected based on statistical measures and a prioria expectations. The model was used to calculate crop acreage flexibility restraints for three subregions of the Texas High Plains.

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