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TO WHAT EXTENT DOES THE GROSS WATER REQUIREMENT FOR FEEDING BEEF CATTLE CONTRIBUTE TO A CATTLE FEEDYARD'S ECOLOGICAL FOOTPRINT?

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Ecological footprint analysis (EFA) has been defined succinctly (Rees, 1997) as estimating the total area of productive land and water required to produce on a continuous basis all the resources consumed and to assimilate all the wastes produced by [a] population, wherever on Earth the land may be located. EFA assumes that (a) all stocks of material resources, including water, air, nutrients and energy, are finite; (b) where a local deficiency in any of those stocks is overcome by commerce, the transaction merely displaces the ecological stress associated with harvesting and using that stock but does not eliminate it; and (c) humans are integral rather than external to the ecosystems in which they operate. EFA may be an intuitive means by which to monitor progress toward sustainability; to compare the ecological impacts of cities, life-styles, or technologies; or to weigh aggregate human demand against available supply.

General EFA distills all significant ecological costs of an enterprise to a single unit of currency: ecologically productive land area per capita. Applied to a single industry, such as cattle feeding, a more practical currency would be land area per unit of annual throughput or productivity (e. g., ha hd⁻¹). In this paper, we present a preliminary calculation of the ecological footprint of the cattle-feeding industry in the Texas Panhandle, with particular focus on the overt contributions of water-resource consumption to that footprint, as well as the more obscure contributions related to appropriation of water resources beyond the Texas Panhandle.

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