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## RESEARCH ARTICLE

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# How long does it take to pay back rangeland improvement investments? A case study from Erzurum Province in Turkey

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*The Rangeland Journal* 36(5) 469-474 <https://doi.org/10.1071/RJ13106>

Submitted: 25 October 2013 Accepted: 29 August 2014 Published: 14 October 2014

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## Abstract

The aim of the study was to estimate the payback period of rangeland improvement investments made under the coordination of the Eastern Anatolia Agricultural Research Institute (EAARI) in the Eastern Anatolia region, Turkey. Farm data were collected from randomly selected rangeland-dependent dairy cattle farms through face-to-face interviews, which resulted in 99 completed questionnaires. Additionally, the data for rangeland improvement studies were obtained from the EAARI. The villages of study were selected from those for which rangeland condition had been determined previously. The data collected by structured questionnaires were for the 2004–05 production year. The farms were studied under three farm size groups of 0–12, 12.1–25 and 25+ ha. Gross margins were calculated for each studied farm. In the analysis of the data, stepwise regression, multiple linear regression and descriptive statistical methods were used. Of the 17 variables considered, only four variables entered to the log-linear livestock gross margin model. These were the type of building used by livestock in winter, cattle and sheep numbers and rangeland condition. Using estimates of the average values of the unit costs of rangeland improvement and additional incomes due to the improvements, it was estimated that on average each Turkish lira invested in rangeland improvement studies could be amortised in three grazing seasons.

**Additional keywords:** dairy farms, payback period, rangeland condition, rangeland-dependent production, rangeland improvement investments.

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