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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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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.

References

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Altın, M., Gökkuş, A., and Koç, A. (2005). 'Pasture and Meadow Improvement.' (General Directorate of Agricultural Production and Development, Ministry of Agriculture and Rural Affairs: Ankara, Turkey.)

Bosch, O. J. H., Gauch, H. R., Boysen, J., Stols, S. H. E., Gouws, G. A., Nel, M. W., and Van Zyl, E. (1992). 'ISPD, an Integrated System for Plant Dynamics (Computer Software Package and Users Guide).' (Department of Plant and Soil Sciences, Potchefstroom University for Christian Higher Education: Potchefstroom, South Africa.)

Callaghan, K. J., and Chen, J. (2008). Revisiting the collinear data problem: an assessment of estimator 'III-conditioning' in linear regression. *Practical Assessment, Research & Evaluation* **13**, 1–5.

CBRT (2008). Indicative exchange rates announced at 15 : 30 on 12/31/2008 by the Central Bank of the Republic of Turkey, Bulten No. 2008/249. Available at: www.tcmb.gov.tr/kurlar/200812/31122008.html (<http://www.tcmb.gov.tr/kurlar/200812/31122008.html>) (accessed 26 August 2014).

Çiçek, A., and Erkan, O. (1996). 'Research and Sampling Methods in Agricultural Economics.' (Gaziosmanpaşa University Publications: Tokat, Turkey.) [In Turkish.]

Düzgüneş, O., Kesici, T., Kavuncu, O., and Gürbüz, F. (1987). 'Research and Experimental Methods (statistical methods-II).' (Ankara University Faculty of Agriculture: Ankara, Turkey.) [In Turkish.]

EAARI (2006). 'Analysis of the Factors Affecting Milk Production and Live-weight Gain in the Cattle Farms Dependent on Natural Grazing Lands in Erzurum.' (Eastern Anatolia Agricultural Research Institute: Erzurum, Turkey.) [In Turkish.]

EAARI (2009). 'Rangeland Improvement and Management Projects' Records.' (Eastern Anatolia Agricultural Research Institute: Erzurum, Turkey.) [In Turkish.]

Erkuş, A., and Demirci, R. (1996). 'Farm Management and Planning.' (Ankara University Publications: Ankara, Turkey.) [In Turkish.]

Gibson, R. S., Allen, W. J., and Bosch, O. J. H. (1995). Condition assessment concepts and their role in facilitating sustainable range management. *Annals of Arid Zone* **34**, 179–189.

Gökkuş, A. (1991). Pasture improvement. In: 'Proceedings of the Eastern and South-eastern Anatolia Meadow, Pasture and Forage Crops Development Project Training Seminar.' 20–22 February. pp. 1–15. (Eastern Anatolia Agricultural Research Institute: Erzurum, Turkey.) [In Turkish.]

Gökkuş, A. (1999). 'Weed Control in Range and Pasture Rehabilitation and Management: Pasture Law Training and Application Manual.' (Ministry of Agriculture and Rural Affairs: Ankara, Turkey.) [In Turkish.]

Gökkuş, A., and Koç, A. (2001). 'Range and Pasture Management.' (Atatürk University Faculty of Agriculture: Erzurum, Turkey.) [In Turkish.]

Groppelli, A. A., and Nikbakht, E. (2006). 'Barron's Finance, Business Review Books.' 5th edn. (Barron's: New York.)

Gujarati, D. N. (1995). 'Basic Econometrics.' 3rd edn. (McGraw-Hill: New York.)

Gujarati, D. N. (2011). 'Econometrics by Example.' (McGraw-Hill: Boston, MA.)

Hatunoğlu, T. (1973). 'Economic Analysis of the Sugar-beet Growing Agricultural Enterprises in Upper Pasinler Plain.' (Sevinç Press: Ankara, Turkey.) [In Turkish.]

Hopkins, A., and Holz, B. (2006). Grassland for agriculture and nature conservation: production, quality and multi-functionality. *Agronomy Research* **4**, 3–20.

Hristov, S., Stankovic, B., Zlatanovic, Z., Todorovic, M. J., and Davidovic, V. (2008). Rearing conditions, health and welfare of dairy cows. *Biotechnology in Animal Husbandry* **24**, 25–35.

| Crossref (<https://doi.org/10.2298/BAH0802025H>) | Google Scholar (https://scholar.google.com/scholar_lookup?title=Rearing_conditions,_health_and_welfare_of_dairy_cows.&journal=Biotechnology_in_Animal_Husbandry&volume=24&pages=25-35&publication_year=2008&author=S%2E%20Hristov&hl=en&doi=10.2298/BAH0802025H) |

Kara, A. (2000). Agricultural enterprises in Erzurum and Kars provinces: capital structure and comparison of agricultural activity results. MSc Thesis, Atatürk University Graduate School of Natural and Applied Sciences,

Erzurum, Turkey. [In Turkish.]

Kara, A., and Kızıloğlu, S. (2012). Socio-economic analysis of the farms dependent on Natural Rangelands in Erzurum. *Turkish Journal of Agricultural Economics* **18**, 69–78.

Kara, A., Çakal, Ş., Tavlaş, A., Yazıcı, A., Aygün, C., and Avağ, A. (2009). Customs and problems in exploiting meadow and pastures in north-east Anatolia. *Alinteri Ziraat Bilimler Dergisi* **16**, 7–18.

Karagölge, C. (1973). ‘Econometric Analysis of the Agricultural Enterprises in Erzurum by Type of Land Use.’ (Sevinç Press: Ankara, Turkey.) [In Turkish.]

Karagölge, C. (1996). ‘Agricultural Management.’ (Atatürk University Faculty of Agriculture: Erzurum, Turkey.) [In Turkish.]

Karagölge, C., Kızıloğlu, S., and Yavuz, O. (2011). ‘Basic Principles of Agricultural Economics.’ (Atatürk University Faculty of Agriculture: Erzurum, Turkey.) [In Turkish.]

Kremen, C., and Ostfeld, R. S. (2005). A call to ecologists: measuring, analysing, and managing ecosystem services. *Frontiers in Ecology and the Environment* **3**, 540–548.
| [Crossref \(https://doi.org/10.1890/1540-9295\(2005\)003\[0540:ACTEMA\]2.0.CO;2\)](https://doi.org/10.1890/1540-9295(2005)003[0540:ACTEMA]2.0.CO;2) | [Google Scholar \(https://scholar.google.com/scholar_lookup?title=A call to ecologists: measuring, analysing, and managing ecosystem services.&journal=Frontiers in Ecology and the Environment&volume=3&pages=540-548&publication_year=2005&author=C%2E%20Kremen&hl=en&doi=10.1890/1540-9295\(2005\)003\[0540:ACTEMA\]2.0.CO;2\)](https://scholar.google.com/scholar_lookup?title=A+call+to+ecologists%3A+measuring%2C+analysing%2C+and+managing+ecosystem+services.&journal=Frontiers+in+Ecology+and+the+Environment&volume=3&pages=540-548&publication_year=2005&author=C%2E%20Kremen&hl=en&doi=10.1890/1540-9295(2005)003[0540:ACTEMA]2.0.CO;2) |

Neter, J., Wasserman, W., and Kutner, M. H. (1989). ‘Applied Linear Regression Models.’ 2nd edn. (Richard D. Irwin: Boston, MA.)

Park, H. M. (2009). ‘Linear regression models for panel data using SAS, Stata, LIMDEP, and SPSS. Working paper.’ (The University Information Technology Services (UITs), Center for Statistical and Mathematical Computing, Indiana University, IN, USA.) Available at: www.indiana.edu/~statmath/stat/all/panel (<http://www.indiana.edu/~statmath/stat/all/panel>) (accessed 25 August 2014).

Sabuncuoğlu, N., Akbulut, Ö., Çoban, Ö., Laçın, E., Yıldız, A., Sağsöz, Y., and Ceylan, Z. G. (2007). Effect of barn ventilation on some physiological and milk traits of dairy cows. *Journal of Animal and Veterinary Advances* **6**, 190–193.

SERKA (2011). ‘Eastern Anatolia Region Large Ruminants Workshop Report.’ (Turkish Republic Serhat Development Agency, SERKA: Kars, Turkey.) Available at: www.serka.gov.tr (<http://www.serka.gov.tr>) (accessed 25 August 2014).

Tahtacioğlu, L., Şeker, H., Göçmez, Z., and Kara, A. (1998). Animal production systems and the factors limiting agricultural production. *In*: ‘Proceedings of Eastern Anatolia Agriculture Conference’. Erzurum, 14–18 September. (Eds A. Vahap Yağanoğlu, T. Öztaş, F. Kantar, Ş. Güçlü and H. Yılmaz.) pp. 717–726. (Atatürk University Faculty of Agriculture: Erzurum, Turkey.)

Williams, J. R., Haka, S. F., Bettner, M. S., and Carcello, J. V. (2010). ‘Financial and Managerial Accounting: the Basis for Business Decisions.’ 15th edn. (McGraw-Hill/Irwin: New York.)

Yavuz, F., Dağdemir, V., and Altunkaynak, A. (2002). An econometric analysis of the factors affecting winter food storage in Erzurum central district. *Atatürk Üniversitesi Ziraat Fakültesi Dergisi* **33**, 323–330.

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