



Community member collecting data. Photo S. Hassan/ICARDA



ENVIRONMENTAL HEALTH & BIODIVERSITY

Rangeland monitoring and assessment using remote sensing and collective action in times of crisis

- Advances in technologies coupled with collective action offer a problem-solving alternative for research and development under unusual conditions such as Covid-19.



RESEARCH
PROGRAM ON
Livestock

Feed and Forages Flagship

Mounir Louhaichi, ICARDA
M.Louhaichi@cgiar.org

Co- Authors:

Sawsan Hassan, ICARDA
Mouldi Gamoun, ICARDA

Context

- Implementation of a rational grazing system is key to the sustainable use of rangelands.
- With prolonged confinement and widespread restrictions on movement due to Covid-19, scientists were unable to conduct field sampling.

Our innovative approach

- We combined remote sensing, collective action and minimum ground-truthing to estimate productivity.
- Community youth took geo-tagged straight down images across the landscape (using predefined protocols) while respecting social distancing.
- Digital images were processed using VegMeasure software to estimate plant cover and grazable biomass.

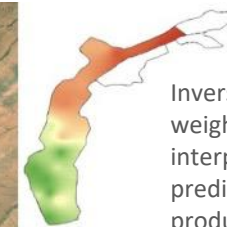


Original picture. Photo: M. Masarda

Processed image using VegMeasure software

Outcomes

- Vegetation cover and biomass were positively correlated ($P < 0.05$) with R-squared 0.85. The carrying capacity was determined based on the estimated grazable biomass and the number of livestock owned by the community.
- These protocols offer a rapid, cost-effective and easy to use technique for sampling vegetation.



Inverse distance weighing interpolation to predict the biomass production

Future steps

- Increase awareness about sustainable use of rangeland resources at the community level.
- Encourage networking and dialogue between communities and decision makers to properly address the specific needs of the agro-pastoralists.

Partners

- Agro-pastoral community at Majidya, Jordan
- National Agricultural Research Center
- Arab Fund for Economic & Social Development



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