LANDSCAN^{TM}--Graziers Using Soil Tests and Natural Indicators to Make Better Decisions

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The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

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Key words : landscape management , land capability , whole farm management , sustainable farm development , farm planning

Introduction LANDSCAN is an educational workshop series for graziers to promote sustainable land-use practices . It is designed to help landholders assess land capability and potential productivity on a paddock basis using vegetation associations , landscape indicators and soil tests . Degradation issues such as acidification , salinity , nutrient depletion and erosion are considered on a whole farm basis , rather than in isolation . The balance between sustainable , profitable production and conservation is achieved by accurately identifying pasture species and matching enterprises to land class and landscape .

Materials and methods LANDSCAN is delivered on-farm , by trained pasture agronomists and livestock specialists , using recognised adult learning principles and a mix of classroom theory and in-paddock practical sessions . There are currently five half-day sessions and a final full day session delivered over 4-8 months and broadly these enable landholders to :

1 . use vegetation and landscape indicators to assess paddock potential and better match land-use with land capability ;
2 . examine soils and geology in more detail and take representative soil samples to assist decision making ;
3 . interpret soil tests from their own paddocks and establish critical benchmarks ; consider the Law of the Minimum"
4 . understand the causes of the land degradation issues observed in the field or indicated by the soil tests ;
5 . develop appropriate management strategies for different paddocks and problems ;
6 . determine priorities and management options , after assessing six paddocks to simulate decision making on a whole farm basis , given a realistic budget .

To further facilitate practice change , the LANDSCAN development team is currently preparing an additional one-day farm planning segment . This will encourage landholders to keep appropriate records and , together with the paddock assessment skills and knowledge learned in LANDSCAN , use them to develop a practical property management plan .

Results & discussion LANDSCAN has now been delivered to nearly 800 participants . Participants knowledge is evaluated at the start and end of LANDSCAN . Answers from the pre and post course questionnaires (with a maximum score of 100) are compared and the level of knowledge change assessed (see **Table 1**) . The results show an average knowledge increase of 66% with most groups achieving a score of 75 following the LANDSCAN course .

Table 1 *Knowledge Change in 8 LANDSCAN Groups .*

Group	Pre Score	Post Score	% Increase	Group	Pre Score	Post Score	% Increase
A	52	80	55	E	26 .	58 .	123
B	50	78	55	F	49 .	74 .	51
C	35	76	117	G	58	80	37
D	45	76	66	H	48	80	67

To obtain feedback about course content , delivery style and practice change , a mail survey is sent out several months after completion of the course . Responses have been extremely positive-most respondents were better able to assess the strengths and weakness of their paddocks . Ninety percent stated that they were better able to prioritise paddocks for inputs and management options for both production and sustainability outcomes . A core outcome is the increased knowledge about and adoption of , technological tools such as soil testing . General comments gathered from the mail surveys included the following :- We always knew some sections of the farm were better than others ..now we have a solid basis to know why ..." ; I used to try to improve the poorest parts of the property-now I understand why it is better to spend money on the better parts ."

Conclusions LANDSCAN provides skills , knowledge and a **process** to help make better informed , more rational on-farm decisions . When productivity and sustainability outcomes are varied for different parts of the landscape , this should lead to better environmental outcomes . Targeting areas with high potential and low risk of degradation for high inputs and production allows areas where the priority is conservation or biodiversity to be set aside and managed accordingly .

Reference

Clements B , Keys MJ , Schumann , B (2005) . *LANDSCAN manual . NSW DPI public n . ISBN :* 0 7347 1627 3 .