

## The Plant Production Team

The role of the plant production team in development of Extension Suite Online is firstly to compile easily accessible information on various crops, their irrigation, nutrition, pests and diseases. Secondly tools have been developed to provide easy access to information on specific pest problems, their prevention and control. There is similarly a tool for obtaining fertilizer recommendations for a specific farm.

A number of people qualified in agronomic, food production and processing disciplines, research and verify information. Sabhinah Mahlangu has a Plant Production degree from University of Pretoria. Portia Maibelo was also at UP and is trained in Food Production and Processing. Suzan Bendo provides back up on the economics of plant production and was trained at UP and UVS as an economist.

The software development is the responsibility of Kabelo Malatetja, who is a specialist in web and software development, and Tlaleng Mohlahlo, who trained at UP in computer science. The team is headed by John Lapham PhD, with degrees from Pietermaritzburg and Reading Universities, and agronomic, horticultural, export marketing and consultancy experience through southern Africa.

### QUESTION OF THE MONTH

Will global warming affect agricultural potentials?



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## Developing Intelligent Problem Solvers

*Extension Suite Online was designed to interpret and transform highly scientific data into useful and friendly formats to provide a knowledge and information system that will capacitate extension officers to improve their efficiency and overall productivity through the use of appropriate technology.*

To this end, an extensive knowledge base was created within Extension Suite Online modules containing a wide variety of information. An easy to use navigation system allows users to browse and research topics, while a search engine allows the user to find links to information and documents within the knowledge base. A user may also review or request solutions using the Questions and Answers tool.

In order to find solutions to real problems, users need to become adapt at navigating through the extensive ESO knowledge base, and to evaluate and interpret required information, based on specific needs. Search results need to be interpreted based on specific parameters, e.g., erosion as a single keyword may be interpreted by an animal scientist as herd erosion, while a plant scientist may interpret it as soil erosion.

Even where the problem type is not familiar to the extension officer, ESO is designed to assist in identifying the solution to a problem. The aim of problem solving is to empower the user to the extent

where he or she can identify the problem and find the solution while on the farm to effectively start addressing the problem immediately.

Considering certain principles of Extension Suite Online (i.e. appropriate information when and where it is required), the remedy is storing and representing knowledge through reasoning mechanisms -- artificial intelligence in the form of intelligent agricultural problem solvers.

With Extension Suite Online version 1.8 problem solvers have already been developed and implemented for plant and animal production modules, which have been positively met by both extension officers and technical experts. It is envisaged that these problem solvers will be further refined, enhanced and extended in Extension Suite Online version 2. The scope of problem solvers will not only include diagnostics and prevention in terms of health related issues, but also all aspects of the enterprise as contained in the knowledge base, increasing the intelligence of the system and thereby assisting the extension officer in making decisions -- a true decision making support system.

By including intelligent problem solvers in Extension Suite Online, access to relevant information is integrated into the workflow of extension officers, and thereby meeting the needs of the farmers timeously on the farm where it is required.

# ESO as an Important Management Tool in Animal Production Systems

Extension Suite Online (ESO) serves as an important information source and agricultural decision support system in facilitating and advising farmers.

Southern Africa harbours a full spectrum of production systems in agriculture. Modern, highly sophisticated and intensified systems of land cultivation and livestock production exists side-by-side with ancient subsistence and traditional pastoral systems. The latter systems have supported communities for thousands of years (irrespective of the level of efficiency) before the first encounters with European immigrants and their more productive commercial farming systems three to four centuries ago. Whilst traditional livestock production is a part of cultural life, inefficiency can no longer be part of it and cannot be afforded, specifically under the current economic climate.

Extension Suite Online (ESO) serves to bridge this divide between the two worlds by serving as an important information source and agricultural decision support system in facilitating and advising farmers towards the identification and selection of feasible, efficient farming options and management practices for their respective farming enterprises.

In livestock production we are dealing with three concepts:

- The environment - The climate, as a major element of the physical environment, influences lifestyles and to a large extent determines agricultural production systems;
- The animal and its inherent biology and associated genetic potential serve as a means to reach your goals in a specific livestock production system; and
- The animal product and its market which refers to the quality of the product when marketed at the most opportune stage for the best possible financial rewards.

The success of the intricate relationship between the three concepts is strongly dependant on the basic principles involved in livestock production and the means to put them into efficient practice. A comprehensive understanding of all the principles influencing animal

production efficiency and the associated human interests and expectations is required when planning a livestock production system. These include:

- Biological principles underlying production efficiency (i.e. survival vs. production, body size and biological efficiency);
- Principles of environmental adaptation (i.e. comfort zones – hot, dry, wet and cold);
- Principles of nutrition (i.e. maintenance, energy requirements, digestion, absorption, cost, protein, minerals, vitamins and water quality); and
- Principles of animal breeding (i.e. breeding systems, selection and replacement)

ESO provides breed based information that hosts all the relevant data in terms of management, nutrition, health and anatomy that a farmer would need in planning a viable and efficient animal production system, for maximum results.

## ESO Training

A need was expressed by some of the Provincial Departments of Agriculture for a training course that will assist Extension Officers in the application of ESO as a critical source of information towards undertaking Farm Feasibility Studies and the resultant Development of Farm Business Plans.

Manstrat has subsequently developed a **two-day training programme** titled "Enterprise Selection and Business Plan Development Guide" to address the above need. This course is offered either at its training facilities in Pretoria and/or on a district basis at a venue organised by the PDA (course fees amount to R 2 000 per course delegate for a group of 12 or more delegates).

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## TECHNOLOGY TIPS



### Q: How can I improve my download speeds in Extension Suite Online?

A: Extension Suite Online (ESO) is categorized as an information support system; therefore ESO is constantly communicating with users over the Internet. There are three critical components that ESO relies upon to establish an effective, fast working system, namely the client's computer, the communication medium and the ESO system itself. The weakest of the three components can be identified as the communication medium for the reason that all the information ESO sends to users, gets bottle necked within this communication medium.

So how can you speed up ESO and improve download speeds? The most critical component is the communication medium, better known as the Internet. Increasing the speed at which you are able to access the Internet will dramatically increase the access and download speeds to ESO. The minimum internet speed one should use to access ESO would be the equivalent to a 512k ADSL line; although a 4bm ADSL line is recommended for more speedy access.