Adaptation to CLIMATE CHANGE
by Jan Theron

Climate change has highlighted the vulnerability of agricultural production systems towards this natural phenomenon. It also reminds us that agriculture provides the raw materials required for human existence, namely food and fibre.

Value chains have been developed to different levels worldwide and they somehow disguise the origin of the product to the urban consumer. However, shortages of foodstuffs with price hikes that follow because of inadequate supply seemingly are alerting communities and populations about our fundamental dependence on agriculture.

It could be argued that we got insurance
in the global integrated food provision system but this has preconditions of affordability and availability when worldwide shortages are experienced. National food security, which is more based on domestic supply, apparently becomes more important in such cases.

Whilst comparable advantage and competitiveness are being used to determine the viability of agricultural production from a pure economic perspective, “national imperative” could become a more important part of the equation and refers to the bodily, social and cultural requirements of a nation.

Climate models that predict expected changes can be used to identify the risk profile of an agricultural commodity in a certain production region under such circumstances. Ongoing production of a commodity that is high on a vulnerability index, would then have to be reviewed.

The following questions would be relevant: Should new technologies and methodologies be pursued or should and could this specific crop or animal be replaced? There are quite a number of factors that will influence the answers.

From a national perspective some elements might be the use of the crop, the economic and domestic/social value thereof, and the estimated investment needed to uphold sustainable production. Substitution could be considered when another crop or animal would provide similar nutrients regarding quantity and quality (safe, nutritious) as well as a reasonable income on farm level.

Water requirements of crops become especially important in this regard. For every cubic meter of water applied in cultivation,
the potato produces 5,600 calories of dietary energy compared to 3,860 in maize, 2,300 in wheat and just 2,000 in rice (year of the potato; 2008).

This raises the argument: Should a crop or animal in future rather be evaluated on its efficiency to produce calories, protein, vitamins and minerals? Market preference naturally would be a challenge if the characteristics of the product were significantly different according to consumer preference. Alternatives will be applicable in cases where the new crop or animal represents another use or market. The choices made would have got significant implications in most instances for all stakeholders.

Contributions and ideas for solutions should not be the domain of “the most important stakeholders” only. The farmer, commodity organisations, input suppliers, agricultural corporates, governments, engineers (infrastructure and logistics),...
climatologists, agricultural researchers, extensionists, trainers, market experts, consumer educators and awareness facilitators as well as financial institutions are examples of stakeholders that should be seen as of equal importance.

New ventures and initiatives should strive to obtain the input and commitment of all of the relevant stakeholders as required by each case. Farmers should be involved as primary custodians and not as the suppliers of raw materials only. This would lead to better collaboration, better-defined objectives and better efficiencies within an environment of healthy competition.

Governments should play a pivotal role in this respect by providing more support to research and development and functioning as the core, impartial enabler of agricultural adaptation programmes.

The Western Cape Department of Agriculture has taken the initiative for the compilation of the “Development of the Western Cape Agricultural Sector Climate Change Framework and Implementation Plan, also called SmartAgri.” The Department of Environmental Affairs and Development Planning is a partner in this project and two universities and a host of experts from different disciplines contributed towards this. Important inputs from other sources of information were gathered when intensive workshops were held with all relevant stakeholders, including farmers and commodity representatives (refer to p.44 for a full article on SmartAgri). The report provides a picture of the apparent vulnerability to climate change of different commodities in various agricultural regions within the province.

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