
Strong Data From Latest Roadkill Survey

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Surveys of wild animals killed by passing traffic (roadkill) have produced strong data and several recommendations. This is according to Bridgestone, which sponsored the Endangered Wildlife Trust's (EWT) recent investigations into the issue of roadkill in the Pilanesberg National Park. The surveys, conducted by the EWT between 21 October and 23 November 2014, consisted of on-site investigation of roadkill as well as questionnaires completed by 302 visitors to the park. Of the 120 roadkill observed by the roadkill research team, 62 were amphibians, 27 were reptiles, 20 were birds, ten were mammals and one was not identifiable.

Vehicle numbers were monitored by the use of traffic counting devices. However, the roadkill research team soon discovered that elephants had taken a liking to the devices and damaged them. Drawing on previous research which has shown that elephants dislike the smell of chilli pepper, the team then applied a daily coating of chilli pepper and oil onto the counters. The traffic counting devices were then protected from further damage. One of the most interesting aspects of the project was the role of speed in contributing to roadkill. "More than 95% of respondents to the questionnaire survey believe that speed is the sole cause of roadkill. Our aim was to investigate this issue in

more detail," said the EWT's Wildlife and Roads Project Executant, Wendy Collinson. Compliance with park speed limits was found to be high, with 72% of the 6981 vehicles monitored driving at or below the speed limits. In order to investigate the role of speed in determining rates of roadkill, the research team placed fake animals on the road and observed the behaviour of 201 drivers. "Of these drivers, almost 70% were considered to not be looking at the road, but rather scanning the bush for wildlife", said Collinson. "This suggests that many roadkills in national parks happen because of the expectation that animals are to be found in the habitat alongside the road, rather than on the road itself", she added.

The team did not find a significant relationship between the number of fake animals hit and the speed at which the vehicles were travelling, with 71.5% of drivers driving over the animals when assessed to be driving less than 20 km/h, 62.1% when driving between 20-40 km/h, and 74.2% driving more than 60 km/h.

"From our survey, it seems that observation levels of the driver, rather than the speed of the vehicle, is the key factor in preventing roadkills," Collinson commented. "One of our recommendations from the latest roadkill survey is that a driver awareness campaign be launched

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in parks to make drivers more aware of animals on the roads themselves,” Collinson commented.

Collinson also said she was concerned about the low awareness levels of roadkills among park visitors. “Of the 284 respondents who had visited a park previously, only 2.8% had noticed roadkill, with 6.3% noticing a roadkill on their current visit,” she explained.

Steven Dell, Pilanesberg National Park’s Field Ecologist remarked, “despite the use of road signs both at the park gates and within the park as well as efforts to raise public awareness of roadkill, roadkill still occurs. This project was extremely beneficial to the park as it has assisted in identifying the cause for roadkill and will enable us to focus our future public awareness efforts.”

Bridgestone PR Manager, Desirée van Niekerk, said the results of the latest roadkill survey had proved as fascinating as ever. “Bridgestone has been involved with the roadkill project for three years now, and we applaud Wendy and her team’s contribution to both road safety and wildlife protection,” she said. “We hope these latest findings will soon be used to improve the quality of the experience of park visitors and safeguard the animals in these protected areas,” she concluded.

The next stage of the project will shortly commence in Addo Elephant National Park.

The EWT’s Wildlife and Roads Project in Pilanesberg was supported by Bridgestone SA, Arrow Bulk Logistics, Pilanesberg National Park, Copenhagen Zoo, Mikros Traffic Monitoring and Africa:Live.

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Is 2015 The Year Soil Becomes Climate Change's Hottest Topic?

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Recently, 650 people from 80 countries gathered in Germany for a week-long discussion about an increasingly important topic in climate change: soil. Dubbed Global Soil Week by the Global Soil Forum - an international body dedicated to achieving responsible land use and soil management - the conference brought together scientists and environmental advocates from all over the world who hoped to translate scientific research about soil into tangible policies for its management. 2015 is shaping up to be a big year for soil - in addition to being Global Soil Week's third year running, the United Nations Food and Agriculture Organization has declared it the International Year of Soil. José Graziano da Silva, director of the FAO, has called soil a "nearly forgotten resource," and has implemented more than 120 soil-related projects around the world to mark the International Year of Soil. Farming First, a global agriculture coalition with more than 150 support organizations, has also called for soil health to be a top priority in the UN's new Sustainable Development Goals.

So why is soil so important?

"If you look at the global carbon created in nature under land-based systems,

soil and trees are the two dominant reservoirs where carbon is," Rattan Lal, director of the Carbon Management and Sequestration Center at Ohio State University, told ThinkProgress.

Soils and the microbes that live within them store three times as much carbon as is in the atmosphere, and four and a half times as much as in all plants and animals. "If the soil carbon reserve is not managed properly," Lal said, "it can easily overwhelm the atmosphere."

Climate change can stimulate the release of carbon from soil in a few different ways. Normally, carbon is bonded to minerals in the soil, which helps keep carbon locked in the soil and out of the atmosphere. A recent report by scientists at Oregon State University, however, found that when chemicals emitted by plant roots interact with minerals in soil, it can cause carbon to break free. This exposes the carbon to decomposition by microbes in the soil, which pass it into the atmosphere as carbon dioxide. As the climate warms, the scientists found, more carbon dioxide in the atmosphere will stimulate the growth of plants, which will in turn stimulate the production of the root compounds that breakdown carbon and soil minerals.

“We thought for many many years if you just increase plant productivity, soil carbon will just go up,” Kate Lajtha, professor of biogeochemistry at Oregon State University, told ThinkProgress. “What more and more models are seeing now is that the opposite is true.”

The microbes that break down stored carbon are also likely to become more active in a warmer world, according to a 2014 study published in *Nature*. The study looked at microbes in 22 different kinds of soil from along a climatic gradient, testing samples of soil from the Arctic to the Amazon. They found that as temperature increased, the respiratory activity of the microbes in the soil also increased, releasing more carbon dioxide and that effect was most pronounced in northern soils, which tend to store more carbon than soils at other latitudes. Soil isn't just useful for storing carbon, it also grows 95 percent of the food we eat, according to the FAO. But even beyond climate change, agriculture is the number one cause of soil disruption. “What we're seeing is probably the biggest drivers aren't going to be those direct effects of climate,” Lajtha said. “Really, the big driver of soil carbon change is what humans are doing to the soil, and a lot of that is agriculture.”

The UN estimates that nearly a third of the world's soil is degraded in sub-Saharan Africa, that figure is closer to two-thirds. Degraded soils are less effective for growing crops, threatening food security in places where most of the population lives off of subsistence farming. According to the Montpellier Panel an

international group working to support national and regional agricultural development and food security priorities in sub-Saharan Africa, soil degradation costs sub-Saharan Africa \$68 billion per year. If soil degradation continues at its current rate, the UN estimates that all of the world's topsoil could be gone in 60 years.

Topsoil, Lajtha says, is where most soil carbon is stored it's where decomposed plant matter and plant roots are deposited so losing topsoil means losing a huge amount of carbon currently stored in the soil. But soil degradation isn't irreversible. “If we manage the soil properly, we can reverse the degradation and some of that carbon that we lost can be put back,” Lal said. Conservation practices like no-till agriculture can help minimize soil degradation, according to Lal. Other practices like planting cover crops in the winter season or continuously applying compost to soil can also help boost soil's ability to retain carbon. “In some ways, it's as simple as a disrupted soil loses carbon and intact soil with vegetation retains carbon,” Lajtha said.

But conservation practices aren't widely adopted yet in Ohio, according to Lal, cover crop use and no-till agriculture is practiced on just one-third of the cropland. Worldwide, such conservation practices account for only 10 percent of cropland. For some farmers, switching to no-till agriculture means replacing seed drills, which can cost upwards of \$100,000.

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“Even though the community as a whole benefits, there might be a reduction in yield that is prohibitive to farmers that adopt it,” Lal said, noting that the adoption rate of no-till agriculture has been almost zero in places like Africa and Southeast Asia. “We have a long way to go,” he said. Scientists have also seen promise in the practice of agroforestry combining trees with cropland or livestock systems. Elizabeth Teague, senior associate for environmental performance at Root Capital, an investing fund that works with small agribusinesses in Africa and Latin America, have seen a slew of benefits associated with agroforestry, mostly with coffee and cocoa crops. “Trees can help enrich the soil, and if done properly you can help avoid erosion, which is a big problem in coffee producing environments,” Teague told ThinkProgress. “Many studies have also shown that the agroforestry system can help mitigate climate change by helping with carbon sequestration. compared to other type of cropping systems, the trees are sequestering carbon and increasing above and below ground carbon stocks.”

Like no-till and cover crops, however, certain barriers still exist between small-hold farmers in developing countries and agroforestry. Planting trees alongside crops requires a certain level of finesse plant too many trees and the crops won't thrive; plant too few, and the environment suffers. “Farmers have to figure out what this sweet spot is where they are maintaining a diverse, robust agroforestry system that also allows them to have a commercially viable farm,” Teague said. “For small farmers without education, resources, and technical assistance, that can be very difficult.”

To Lal, who contributed to the Montpelier Panel's 2014 report on soil restoration, agriculture might be the problem but it can also be the solution. “Most of the time the perception is that agriculture is a big time problem,” he said. “Yes, agriculture done improperly can definitely be a problem, but agriculture done in a proper way is an important solution to environmental issues including climate change, water issues, and biodiversity.”



Image: www.photol.com



What is agricultural land?

Charles Simkins

<http://www.ngopulse.org/article/2015/05/20/what-agricultural-land>
SA NGO Pulse

In this article, the author sets out the definitions of agricultural land and outlines the regulatory framework contained in the Preservation and Development of Agricultural Land Framework Bill.

The story goes back to the Subdivision of Agricultural Land Act 70 of 1970, as amended. In that Act, agricultural land was defined as a residual category. Excluded was:

- Land situated in the area of jurisdiction of a municipal council, city council, town council, village council, village management board, village management council, local board, health board or health committee;
- Land of which the State is the owner or which is held in trust by the State or any Minister for any person;
- Land which the Minister after consultation with the executive committee [of a province]; concerned and by notice in the Government Gazette excludes from the provisions of the Act; and
- A number of other categories of land, often specific to individual provinces.

What happened when wall to wall local authorities were introduced? That threatened to create a situation in which no land was agricultural land, so a proviso was added by proclamation which said that any land classified as agricultural immediately

prior to the first election of the members of a transitional local council would remain classified as such. The issue of what would happen once the new local authority system was finalised was tested in the courts, with the Constitutional Court ruling that the proviso would continue to apply. Much, though not all, of the land in the former homelands was, and continues to be, state trust land. The draft Preservation and Development of Agricultural Land Framework Bill proposes to update the definition. Agricultural land is again defined as a residual category. This time the exclusions are:

- Land in a proclaimed township;
- Land included in an application for declaration as a township before the commencement of the [new] Act, provided that the application is approved;
- Land which, immediately before the commencement of the Act, was formally zoned for non-agricultural purposes by any sphere of government or any public entity; and
- Land which the Minister, after consultation with other relevant Ministers and provincial MECs concerned, excludes by notice in the Government Gazette.

Gone is the earlier reference to state land or land held by the state in trust. Applying for a subdivision or rezoning of agricultural land after the commencement of the new Act will be a lengthy process. First an application has to go to the province. Then the province has to consult the relevant municipality. If the land is occupied by a traditional community, traditional authorities have to be consulted by the municipality. The application then goes back to the province and from the province to the national department responsible for agriculture, forestry and fishing, where it has to be considered by a committee and then by the Minister, who makes the decision. At every stage, the application must be considered in the light of several criteria and recommendations made. This means that there can be no new township without the approval of the Minister of Agriculture.

In tandem with the publication of the Bill, a Draft policy document on the preservation and development of agricultural land has been released by the Department of Agriculture, Forestry and Fisheries. This contains quite a different definition of agricultural land: any land which is or may be used for the production of biomass that provides food, fodder, fibre, fuel, timber and other biotic material for human use, either directly or through animal husbandry including aquaculture and inland and coastal fisheries or any other agricultural purpose, with the exception of land excluded by the Minister.

The draft Bill innovates by defining eight classes of land, ranging from Class I, which has very high potential for

intensive crop production to Class VIII, which has permanent limitations that preclude its use for commercial agricultural production and restrict its use to recreation, wildlife, water supply or aesthetic purposes. Classes I and II are suitable for intensive crop production, class III has a moderate and Class IV has a marginal potential for crop production. Classes V-VII are suitable for grazing and forestry while Class VIII normally includes very steep areas that are not suitable for agricultural purposes.

Classes are grouped into high potential cropping land (Classes I to III plus irrigated or potentially irrigated land plus other land capable of producing high quality and high yields of a specific crop) and medium potential land (all other agricultural land).

This classification has bite, because the Bill:

- States that agricultural land is the common heritage of all the people of South Africa and the Department (DAFF) is the custodian thereof for the benefit of all South Africans;
- requires that a farmer actively uses and develops the agricultural land concerned to its optimal agricultural potential, with due regard to the farming enterprise concerned;
- and protect the agricultural land concerned from non-sustainable agricultural activities and non-agricultural activities. Failure to do so may result in expropriation at a lower price than would be paid for similar land in the same geographical area which is used optimally for agricultural purposes.

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The draft Bill also:

- Prohibits the conversion of high potential cropping land to eco-tourism game farming or other agricultural production activities, where such conversion will result in a decrease in, or cessation of, the production of food and food crops;
- Requires that lease agreements of longer than ten years on high potential cropping land be approved by the Minister;
- Requires written consent, by the Minister in the case of high potential cropping land or the provincial MEC in the case of medium potential land before any portion of agricultural land, whether surveyed or not, is sold or advertised for sale for non-agricultural purposes;

- Requires Ministerial consent to consolidation of high potential cropping land;
- Requires Ministerial consent to the acquisition of agricultural land by a foreigner; and
- Permits the Minister to intervene in matters succession to agricultural land, possibly requiring the realization of the land as part of winding up an estate.

The passage of the Draft Bill as it stands would introduce much heavier regulation than existing legislation. In turn this requires considerable information and capacity, at all three levels of government. The next brief in this series will consider both these issues.



The State Plans our Agricultural Future Part 2: Can the Informational Requirements for Heavy Regulation be Met?

Charles Simkins
www.ngopulse.org/blog/2015

Feet on the Earth or Head in the Clouds? The State Plans Our Agricultural Future

The first brief in this series set out definitions of agricultural land and outlined the regulatory framework contained in the Preservation and Development of Agricultural Land Framework Bill. The Bill proposes heavy regulation of agricultural land, which in turn imposes substantial information requirements. Can these requirements be met? The draft Bill provides for the establishment of an electronic geo-referenced land register which will:

- Store data and information for the development, protection, sustainable use and management of natural agricultural resources and agricultural land. This includes demarcation of high potential cropping areas and potential agricultural land. For each piece of agricultural land there must be a record of its ownership, including the nationality and gender of the landowner, and any other information as may be prescribed by the Minister from time to time, and the characteristics of agricultural land, including

land cover and land capability class. Information on current agricultural or other land use, environmental encumbrances, water licenses and other natural resource-related information is also required.

- Lodge and track applications

Every provincial Department must provide information on relevant spatial datasets, show the extent of agricultural land lost to mining, formal urban residential developments, informal urban residential developments, and industrial developments, and integrate datasets from different sources, including municipal and farm level.

What resources do we currently have to help meet these requirements?

- The State Land Audit, completed in 2014, was conducted to determine how much land was owned by the state, what was it used for, and who were the occupants or users. The audit was conducted for all spheres of

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government, and the former home lands, public land held by the Ingo nyama Trust and land of state owned enterprises. It excluded land not registered at the Deeds Office. There were site visits to registered state land, while a desktop study was made of private land.

The audit provided statistical information pertaining to land ownership, specifying gender, and nationality or citizenship, and identity of owner. The audit found that of the 121 973 200 hectares of land in South Africa, 79 percent was privately-owned, 14 percent was state land and seven percent could not be accounted for. Of the private land, 48 percent was owned by individuals, 22 percent by companies, 27 percent by trusts and three percent by private organisations.

The 17 061 882 hectares of state land was divided into 1 155 508 land parcels. 40 percent of this land was held by national departments, including tribal trust land, 22 percent was held by parastatals, 19 percent by provinces and 12 percent by municipalities, with the remainder not classified.

The surveyor-general also reported to Parliament that 95 percent of unsurveyed land in the former homelands in 2011 had been surveyed by 2013. The Land Audit reported that 16 035 593 hectares of land were situated in the former homelands. Some of this would have been private and some held in trust by the state. The extent of electronic geo-referencing of land is unclear.

On the basis of national spatial data in its possession [1], the Department estimates that the distribution of land capability by class and land by use is:

Class I	0.0%	Land water	0.20%
Class II	1.5%	Irrevocably transformed from	
Class III	11.5%	Agricultural use	2.60%
Class IV	13.5%	Formally protected	
Class V	11.2%	Game reserves	4.60%
Class VI	14.9%	Forestry	1.30%
Class VII	37.3%	Cultivation	11.40%
Class VIII	10.3%	Range land	80.00%

Namibia committed to biodiversity conservation

<https://www.newera.com.na/author/staff>: New Era Staff Reporter

Over the past five years the government has invested an average of about 2 percent of its total expenditure in biodiversity conservation with the aim to safeguard and maintain the health of the national ecosystem at all costs.

About 70 percent of the Namibian population depends directly on natural resources for their livelihoods - income, food, grazing land, medicinal plants, animal products, fuel and shelter. Hence, the government remains committed to the conservation of healthy ecosystems and wishes that the 2 percent spent over the last five years will be increased with the assistance of the newly launched Resource Mobilisation for Biodiversity Conservation (ResMob), a first of its kind project. Launching the project on Wednesday the Minister of Environment and Tourism, Pohamba Shifeta, said quantifying the value of biodiversity and nature to the economy would be a powerful tool to assist government in this regard. He said it is not only the preserve of government to mobilise resources for biodiversity conservation, adding that the activities of the private sector through the consumption of water and electricity alone often negatively affect the environment.

Therefore, Shifeta called on all captains of industry also to help government by increasing their contributions to biodiversity management. Ecosystems are being increasingly threatened and degraded by unsustainable practices, such

as mining, over-fishing, over-grazing, deforestation and the inefficient use of water, while climate change is expected to intensify the country's existing vulnerability to droughts and floods. These all have substantial impacts on the economic potential of rural areas and the livelihoods of people and are possible serious barriers to development.

Meanwhile, Kauna Schroder, Coordinator for Biodiversity and Sustainable Land Management in the ministry highlighted the importance of the project among key stakeholders to raise awareness of biodiversity conservation. The Ministry of Environment and Tourism in partnership with GIZ - commissioned by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety - is jointly implementing the ResMob project. It is expected the project will support and complement the activities of the environmental economic divisions in their attempts to put a value on Namibia's natural capital and ingrate these values into national accounting systems. This will aid Namibia in integrating biodiversity in planning for development, poverty alleviation, land use, sustainable use of natural resources and climate resilience.

It also aims to result in a cabinet-approved resource mobilisation strategy for biodiversity conservation. Namibia launched its first National Biodiversity Strategy and Action Plan (NBSAP1) in 2001, as part of its efforts to conserve biodiversity. Although this acted as an important tool for biodiversity financing, the NBSAP review found that implementation had been limited in some areas due to funding constraints. The overarching aim of ResMob is to improve Namibia's capacity to mobilise resources for biodiversity conservation, specifically to enable it to implement the objectives outlined in NBSAP2.

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South Africa: Communities urged to protect SA's biodiversity

AllAfrica

Pretoria — Deputy Minister of Environmental Affairs, Barbara Thomson, has urged all South Africans to step up efforts to protect the country's biodiversity for the benefit of the present and future generations. "Our vast wealth of biodiversity, our variety of life from genes, species and ecosystems offer a suite of natural solutions in the face of unemployment, rising poverty levels and climate change," Deputy Minister Thomson said on Friday. She was speaking at the launch of the Environment Sector Local Government Strategy as part of the International Day for Biological Diversity (IDB) celebration's in uMgungundlovu District Municipality, KwaZulu-Natal. Some of the benefits offered by the biological diversity included protecting areas from soil erosion, providing food security, medicinal products as well as reducing the risk of local and global climate change. "The strategy will propel government initiatives aimed at advancing sustainable development projects in South

Africa as these are implemented at the grassroots level," department spokesperson Albi Modise said. The Local Government Support Strategy provides a platform for a more coordinated and structured mechanism of dealing with sustainable environmental management in local government.

Modise said the department in partnership with various entities was running several biodiversity initiatives aimed at solving water security challenges and promoting sustainable development in the catchment areas of the Municipality. The initiatives included the "Save the Midmar Dam" Project and the WESSA "Working with Traditional Leaders in the uMgeni Catchment Programme". "This area has also attracted various international projects focussed on biodiversity and climate change adaptation through making use of Ecological Infrastructure for poverty eradication and improvement of livelihoods," he said.



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



ASSAF Report Addresses Safety in Research

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Safe, secure and ethical conduct in life science research in South Africa is assessed in a consensus study on biosafety and biosecurity launched by the Academy of Science of South Africa (ASSAf).

The ASSAf report entitled *The State of Biosafety and Biosecurity in South Africa* evaluates existing measures and capacity to detect, identify, control and prevent the natural, accidental or deliberate spread of infectious agents. It comments on the relationship between science and safety and addresses shortcomings, strengths and gaps in the laws and their implementation, as well as the practices relating to biosafety and biosecurity at laboratory level.

Key findings from the study include poor education and/or training on research ethics for life scientists, inadequate compliance with the statutory obligations to report Notifiable Medical Conditions, the lack of a database of both public and commercial laboratories in the country and a low level of awareness among life scientists about national and international conventions, laws and regulations related to their research. Research and development in the life sciences are important elements of South African growth and development and are essential to address the needs of the country. The ASSAf study contributes

towards ensuring that biosafety and biosecurity are properly observed in life science research as it is in the interests of all South Africans and that of the life science community.

On education and awareness raising, several findings were made. A survey among practising life scientists found that education and/or training on research ethics, including issues such as scientific misconduct (falsification, fabrication and plagiarism), is not routine for life scientists. Such training is essential to ensure the integrity of science in South Africa. Biosafety training is not regularly conducted for staff working in laboratories, nor was a test of competence routinely required. There was also a low level of awareness among life scientists about national and international conventions, laws and regulations related to their research. In this regard, the report urges the Department of Health to consider regulations requiring laboratory staff to undergo biosafety training that includes an assessment of competence.

The report provides guidance on how recommendations can be implemented in a manner that can improve the state of biosafety and biosecurity in South Africa.

These are grouped under the following four themes, namely:

- Improving the capacity to detect and respond to infectious disease outbreaks.
- Education and awareness raising.
- Ethics review.
- Scientific openness and transparency.

This report is the product of the work of a 10-member consensus study panel chaired by Prof Jill Farrant.

The Academy of Science of South Africa (ASSAf) is mandated to provide evidence-based advice to government on matters of critical national importance. The study has followed the traditional Academy consensus study methodology, in which a panel of experts, guided by the panel chair, undertakes the study on a voluntary basis. The advantage of this multiperspective approach is that it is free of partisan interest. As a result, the findings and recommendations are the best considered outcomes in the circumstances.



Low Use of Improved Sorghum Hybrid Seeds Stifles Production of Crops

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<http://epaper.peopledaily.co.ke/#folio=1>

Sorghum is one of the most important cereal crops in arid areas though largely underutilised. In Kenya, sorghum is grown in the drought-prone marginal agricultural areas of Eastern, Nyanza and Coast regions. The crop—one of the orphan crops can be an alternative staple food in hunger-stricken areas and ensure food security in the drought-prone regions of the country. But despite its suitability in the semi-arid areas, the area under sorghum production is still low with minimal yields, especially in Eastern Kenya.

According to the International Crops Research Institute for the Semi-Arid Tropics (Icrisat), the reason for low productivity of highly nutritious traditional crops such as sorghum is partly low use of improved hybrid seeds arising out of poor distribution systems. Also, farmers hardly use inputs because of low incomes. “Eastern region is a rich agricultural area and productivity could be improved by use of locally available germplasm. In Kenya, 230,000 hectares are under sorghum but only 25 per cent of the total is under improved variety— not because there are no such seeds but because of lack of accessibility,” said Dr Erick Manyasa, a crop breeder at Icrisat.

He said the organisation has come up with 38 varieties of hybrid sorghum which have been proven to be adaptable and more productive by 15 to 40 per cent compared to open-pollinated varieties. “We focus on what impacts growers most, such as water management, stress management and overall plant health for each region, and the results of that research are reflected in these new hybrids for 2015,” said Manyasa. He said the crop is well-adapted to the environment in Eastern, Nyanza and Coast regions and varieties have been developed for the major ecological zones, with fast maturing varieties for low rainfall areas, and slower ones for the wetter parts. “These hybrids will offer sorghum growers strong yield potential, improved agronomic performance, a wide range of defensive trait packages and adaptability to both irrigated and dry land acres,” added the scientist. “There is high demand for sorghum mainly in the brewing industry to replace barley, yet the amount produced by farmers is too low to satisfy the market demand. I would urge more farmers to embrace this farming not only for commercial but also for food security.” He said Icrisat is giving the seed traders in Kenya hybrid parent seeds for free to multiply so that they can have enough for their customers.



East Africa: Sap-Sucking Insects May Combat Kenyan Cactus Plague

Maina Waruru
SciDev.Net

An insect that sucks the sap out of cactus plants has been trialled in East Africa to contain the spread of an invasive cactus species that threatens local grazing areas. The cochineal bug, known as dudu in Swahili, for biological control has been released on farmland in Kenya's Laikipia region, which is used by Maasai for livestock herding. The trial showed that the dudu bug feeds exclusively on the *Opuntia stricta* cactus, better known as prickly pear, which has invaded grasslands and drives out local plants used to feed cattle.

The Maasai community in Laikipia partnered with the Centre for Agriculture Biosciences International (CABI) to conduct the trial and halt the spread of the cactus. According to CABI, an non-profit science organisation from the United Kingdom, the trial, which concluded last month, has shown that the dudu bug will not be harmful to native and non-harmful imported plants in the region.

"The cochineal has not been found on other cactus species such as *Austrocylin-dropuntia subulata* and *Cereus jamaru* that are growing in association with *Opuntia stricta*," says Arne Witt, the coordinator of the invasive species programme at CABI-Africa. "In a nutshell, there is no risk."

The prickly pear cactus was introduced in Kenya during colonial times as an ornamental plant capable of living in arid regions. Since then, the plant has colonised thousands of acres of fragile rangelands in northern Kenya, putting at risk the livelihood of animal herders.

According to CABI the cactus is also suspected to have caused the death of baby elephants after they consumed its fruit, meaning it poses a threat to local wildlife and related income from tourism. The dudu bug, which is related to the cicada, was imported from South Africa, where it has been used in Kruger National Park to tackle prickly pear infestations. The insect sucks the sap from the plant, which ultimately kills it.

In Kenya prickly pear infestations have previously been addressed with herbicides and manual removal methods, which are expensive and often create additional environmental damage. Lusike Wasilwa, a researcher at the Kenya Agricultural and Livestock Research Institute (KALRO) says the dudu bug could be a safer alternative.

However, she adds that the bug will not be released more widely unless it is absolutely certain that it will not kill local plants. "This research must be followed by exhaustive trials to ascertain that any foreign species brought into the country will not negatively impact on local biodiversity," she says. "Necessary approvals must also be sought." A previous proposal to tackle prickly pear infestations included using the cactus as animal fodder during dry season. But Witt says that work done since has shown that prickly pear would not make a viable alternative to conventional animal feed. Instead, feeding the plant to livestock would greatly increase its spread through defecation and propagation of plant fragments, CABI found.

"It would mean that when conditions are favourable the weed will continue to spread and only when there is a drought will it be utilised," Witt explains. "So when times are good it will continue to displace local plants and make more valuable pasture inaccessible."



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