Locusts are small creatures measuring approximately 0.5 to 3 inches long and weighing 0.07 ounces that belong to the grasshopper family. The average lifecycle of a locust is three to six months. In normal circumstances they are solitary but can change their behaviour and become gregarious under certain conditions. During the dry season, they tend to swarm together in the scant patches of vegetation. The swarming causes serotonin to release into their central nervous system, promoting rapid movement, giving them appetite for a more varied diet leading to their rapid spread.

The onset of rains brings with it an increase in lush vegetation, favouring the rapid increase of the insects and triggering their gregarious phase during which the desert locust can be devastating, consuming its weight in food in a day. In each square kilometre of a swarm there can be as many as 40 million individuals capable of destroying in day enough food to feed more than 35,000 people.

Towards the end of 2019, the East African region experienced an invasion of desert locusts of a scale not witnessed in the region in decades. The desert locusts descended on farmland in Kenya, Somalia and Ethiopia in their hundreds of millions.

According to scientists, two cyclones in 2018 — Cyclone Mekunu in May and Cyclone Luban in October — caused massive rainfall in the Arabian Desert, a factor that facilitated the breeding of desert locusts. The rains were enough to create ephemeral lakes in the desert, a favourable breeding ground for desert locusts. It is believed that this phenomenon is likely to have enabled the formation...
of three generations of locust deserts, increasing the number of the swarming locusts 8,000-fold.

As is the nature of the desert locust, the swarms began to migrate and by the summer of 2019 they were crossing the Red Sea and the Gulf of Aden into the Eastern Africa countries of Ethiopia and Somalia. The desert locusts continued to breed for several months, with the autumn rains experienced in the East Africa region — capped by cyclonic storm Pawan, experienced in December of 2019 and responsible for rainfall in Somalia — triggering another reproductive cycle of the desert locusts.

The swarms of locusts continued to grow and arrived in Kenya towards the end of December 2019, rapidly moving through the northern and central parts of the country. By the end of January 2020, Kenya was experiencing the worst locust invasion in 70 years. So intense were the infestations — which moved through the neighbouring countries of Eritrea and Djibouti, finding their way to northern Tanzania and northeast Uganda in mid-February — that they posed a serious risk of food insecurity in the region.

The impact of the locust invasion was severe and continues to be felt to this day. In as much as Kenya has made significant steps in combating desert locusts infestations, new infestations continue swarming into the country and farmers in the north and in some parts of central Kenya continue to grapple with the huge losses caused by the invasions.

According to reports by the Food and Agriculture Organization (FAO), about 20.2 million people in the Eastern Africa region faced acute food insecurity in 2020 alone, a condition that was worsened by the desert locust infestations and the Covid-19 pandemic. Further, according to the FAO, desert locusts have the potential to affect 20 per cent of the earth’s land and put into jeopardy the livelihoods of a tenth of the world’s population.

As explained at the beginning of this article, the desert locust has the potential to destroy in one day food that can feed over 35,000 people, threatening a country with food insecurity. But while this might be the immediate impact of a desert locust invasion, infestations have other long short- and long-term effects.

It is said that a healthy nation is a productive nation. However, locust invasions have the potential to nullify this statement in less than a week of their landing in a region. The recent and ongoing wave of locust infestations has driven families and vulnerable groups into poverty and hunger, a situation that has been worsened by the Covid-19 pandemic.

Desert locusts have the potential to affect 20 per cent of the earth’s land and put into jeopardy the livelihoods of a tenth of the world’s population.

Desert locust infestations are not only a threat to crops but they also threaten the survival of livestock. The FAO reported that in Ethiopia alone, an early assessment of the impact of the wave of locust invasions showed that more than 5,000 square miles of pastureland and 800 square miles of cropland were destroyed. The infestation also caused the loss of over 350,000 metric tonnes of dry grains and cereal, resulting in over one million people experiencing hunger and needing food aid.

A nation that is not food secure is a nation that is not secure at all. Hunger and poverty contribute to increased crime in a country, driving people to engage in all manner of vice in an effort to survive.

Food insecurity is also a leading cause of increased government borrowing in a bid to alleviate the suffering of the population. The borrowing, which is meant to cushion the nation from the effects of
the invasion and other resultant challenges, leads to a ballooning national debt and a high cost of living. Locust invasions also seriously affect a country’s export earnings which has a direct effect on previously planned expenditures. Locust infestations also tend to derail the development agenda of a country as it is forced to put scheduled plans on hold in order to deal with the invasion.

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How then can a country deal with locust infestations to guarantee its food security and avert the challenges associated with such invasions? Biological methods of pest control are safest, both for the environment and for humans. However, biological methods of desert locust control may not be effective, especially in cases where swarms are involved.

The most commonly used biological method of pest control is the use of a predator to eliminate the pest. However, the challenge with this method is that it cannot be effective in controlling large swarms of locusts as they can easily fly away from their predators. Another challenge is that locusts barely stay put for more than a day or two since they are constantly looking for food and therefore cannot be easily contained and controlled.

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The other option of locust control would be to use of nets to capture swarms. However, this method of control can only be effective on a small scale since large swarms of locusts can fly above and past the nets.

Scaring the swarms away is yet another method of locust control. However, it can only be implemented in small areas since scaring the pests away only drives them to the next available vegetation for them to devour.

Consequently, the most effective method of controlling large swarms of desert locusts is to spray organophosphate chemicals in small, concentrated volumes using aerial sprayers, vehicle-mounted sprayers, or from knapsack or handheld sprayers in smaller areas.

However, spraying chemicals to control locusts also has adverse effects on nature and on living organisms. For instance, while the use of the Metarhizium biopesticide was found to be 70 to 90 per cent effective in the control of locusts, with no measurable impact on non-target organisms, this is not the case with other chemical formulations that wipe out both the target and non-target organisms, immensely impacting the ecological balance.

During the recent wave of locust invasions experienced in Kenya and the larger East African region, the FAO has collaborated with the local and national governments to mitigate the spread of these swarms to other areas by spraying pesticides both on the ground (to kill any eggs or nymphs) and aerially in areas where it is safe to do so. Research is ongoing to develop formulations that have the least impact on non-target organisms.

Notably, the FAO is working closely with 51 Degrees Ltd., to bring the desert locust situation under control using a hotline system integrated with tracking software, trained scouts, and aircraft. The EarthRanger system captures and transmits locust sightings and movements, making it easier to control the swarms. Initially developed to track poaching, the method has been yielding positive results in locust control in Kenya.

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Planning by governments is essential in ensuring that a country is not caught off-guard by infestations in the future. Having mitigation measures in place to reduce the impact of locust infestations on a country’s economy is crucial.

Locusts are an important part of the grassland ecosystem as they stimulate nutrient cycling and play a crucial role in food chains. As such, governments should think of balanced ways to control these insects while at the same time maintaining the much-needed balance in the ecosystem. Controlling the locusts ensures that a country enjoys food security and also averts other challenges brought on by locust invasions.

While biological control may prove hard to implement, especially where large swarms of locusts are involved, the government can come up with other safe control mechanisms that do not affect the environment and ecological balance. For instance, finding a way of preventing swarms of locusts from landing on crops as they migrate can be a good way to ensure that a country’s food security is safeguarded.

Additionally, investing in research to better understand the biology of locusts, their breeding habits and migratory patterns, and applying the ecological niche modeling approach to predict the breeding sites of locusts can be very useful in controlling these insects. Institutions such as the International Centre of Insect Physiology and Ecology (ICIPE) in Kenya have been at the forefront in researching better ways to combat locust infestations using this approach.

The model proposes the use of historical datasets of the breeding patterns of desert locusts in the Middle East and in the Sahel region to predict the probability of locusts breeding in the East African region. This type of research identifies the desert locust breeding hotspots and better prepares a country to combat the menace. Through such an approach, the government can come up with a cost-effective, site-specific, and targeted management of crawling hoppers before they become gregarious adults, thus minimising the risk of an outbreak.

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