

A Living Nightmare: Defeating the Locust Plague of 2020



They are unpredictable. There is no real warning. But when they invade, they descend as an army of billions. In the darkness, the vicious predators feast on anything green, and within hours, any vegetation in its path is gone. This apocalyptic image is not a bad dream, but the current reality: A worldwide locust upsurge is hitting countries around the globe with East Africa and the Horn of Africa seeing the worst outbreak in decades – destroying hectares of farmland and putting millions at risk of hunger and famine.

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Ravenous locust swarm clouds more than [three times the size of New York City](#) descended in northeast Kenya, which is battling its worst infestation in 70 years. In the Wachile region of Ethiopia, locust swarms [forced more than 15,000 people to evacuate](#) their homes in May. Swarms travelling from Pakistan into India made their way to the northern states for the first time since 1962. Alerts were issued in South America in late June as [a 9 mile² swarm](#) that entered Argentina from Paraguay headed towards Uruguay. Swarms continue to form in [Yemen](#) with breeding likely to prevail throughout August and extend to the Red Sea Coastal plains. Amid the COVID-19 crisis, farmers in some of the world's most impoverished regions are fighting to stop locusts from decimating vital crops and grazing pastures and leaving vast populations food insecure. Without immediate action, in East Africa 4.9 million people could face starvation this summer. Pius Nyagah Muchenge, a Kenyan farmer hit by the upsurge, explains:

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Locusts devour a cabbage leaf

The situation is dire, but this isn't a new problem: locusts are the oldest migratory pest in the world. Plagues of locusts are recorded as early as the Pharaonic times of ancient Egypt with perhaps the most famous reference in the Old Testament's Book of Exodus. The largest plague in U.S. history was recorded in 1875 when a swarm of *trillions* of the now extinct "[Rocky Mountain Locusts](#)" measuring 1,800 miles long and 110 miles wide flew over the Midwest. Notable recent infestations include the outbreaks of 2003-05 in West Africa, 2013 in Madagascar, 2015 in Russia, 2016 in Argentina and 2019 in the Italian islands of Sardinia.

Scientists note [climate change](#) as a main driver of the current outbreak. Severe weather conditions including heat extremes, strong cyclones and unusually heavy rains in the Arabian Peninsula are creating ideal conditions for adult populations to explode. If not properly mitigated, catastrophic plagues can develop, taking several years and hundreds of millions of dollars to bring under control with severe repercussions on food security and livelihoods. This in a time, where COVID-19 already puts pressure on food systems in countries where economies are highly dependent on agriculture. In Kenya and Uganda, for example, about [75% of their workforce](#) is employed in agriculture making up about a third of their GDP. Muchenge speaks to the crisis faced by farmers in his region: "What do you do when you work so hard to cultivate your crops and then something that you had never anticipated, something that is beyond your control happens and destroys your crop which essentially means livelihood to you and your family?...This is very devastating." The fear of food insecurity also hits home for Ugandan farmer Kaahwa Jean: "I fear for farmers incurring losses and food insecurity. Food is an essential for survival so the whole community will be affected directly or indirectly by the food scarcity and rising prices."

Oxfam estimates that thanks to droughts and areas of severe floods, [25.5 million](#) people in Burundi, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda already suffer from hunger and severe malnourishment. The Food and Agriculture Organization of the United Nations (FAO) says if the trajectory continues, the locust upsurge can threaten the livelihoods of 10% of the world's population. Without broad-scale action to control the locusts, damages and losses could reach [US\\$8.5 billion](#) by the end of 2020, leading to widespread famine, disease and increased poverty.

To date, the **only effective way** to combat locust swarms of this magnitude is to apply insecticide either by air or on the ground when the insects are resting and treating the breeding areas as prevention.

Jean sees the insecticides as “essential for crop protection so that we are able to have adequate crop for sale to the market. I wish I had effective pesticides to combat the locusts.” He is not alone, farmers in the affected regions are desperate for supplies and training, as Muchenge shares:

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Insufficient equipment and funding have been further exacerbated by the global travel and import restrictions taken to curb the spread of COVID-19, which have resulted in disruptions to supply chains, delaying delivery of product supplies, surveillance equipment and global awareness. Dr. Holger Kray, World Bank Practice Manager for Agriculture and Food Security, elaborates on the **awareness issue**: “If the world was not unfortunately distracted by the horrific COVID-19 situation, the locust situation would be all over the media; because it is overwhelming, it is a horrific situation”. Communities are left with little else to do than use smoke, dig ditches to bury hoppers or trying to scare them off by banging on drums, cans and pans, blowing whistles, honking motorcycle horns or **revving tractors**.

Earlier this year, the FAO issued a call for insecticides, including Deltamethrin, an active ingredient effective in combating the desert locust. **Bayer donated** 170,000 liters of Decis ULV, a Deltamethrin-based insecticide. Kenya and Uganda were identified as priority countries, and the product was shipped to the Ugandan and Kenyan government to deliver it where it is needed most.

Locusts - a Global Threat to Food and People

To help raise awareness of the crisis, Bayer moderated a livestream conversation on LinkedIn (**replay here**) where Indian farmer Baldwinder Singh Kang describes what is happening in his community while renowned experts from the FAO, the World Bank and Bayer discuss the impacts on food security and what can be done to stop the trajectory of the upsurge.

Continued funding to provide access to urgently needed insecticide is the only way to address the immediate crisis. In addition, proper training is critical to ensure the right protection is applied in the right amount, in the right place and at the right time. But how do we get ahead of potential outbreaks? There is no silver bullet. An integrated strategy is needed that invests in and incorporates all available tools in the toolbox, from better forecasting and monitoring technologies to the controlled spraying of chemical and biological crop protection products.

The FAO and the World Bank are partnering with ag industry leaders, non-profits and local governments to develop integrated pest management plans to support affected countries to undertake safe and effective operations to monitor, treat and prevent insect damage. Keith Cressman, FAO Senior Locust Forecasting Officer, notes the necessity of leveraging the expertise of collaborators and investing in technology like **data science**:

“We’re already partnering with NASA, with NOAA, with the European Space Agency, with Cambridge University... all of these different entities have their own expertise.” **Mobile surveillance applications** are already showing promise in getting real time local reports to better inform where airplanes should spray. Modeling and the use of algorithms have the potential to predict the spread of swarms to determine the optimal control strategy. Drones are used today in some parts of the world for seeding, fertilization and crop protection. India is one of the first countries to approve the use of drones for locust control, and Bayer is partnering with multiple drone technology providers for locust control activities in Rajasthan, one of the worst-affected states. These trials are being conducted in collaboration with the State Agricultural Universities in Rajasthan to generate data on effective locust control. Pilot programs using advanced types of **drones** and **satellite imagery** that intelligently map out dry topsoil on farms to look for moisture beneath, could help predict ideal conditions for egg laying and potentially stop an outbreak before it can start.

The current locust crisis shows that crop protection and innovations in agriculture have been—and will continue to be—crucial to help ensure food security, global prosperity and a sustainable future. Even in the best of times farmers in the affected regions lack access to the latest technology and training to produce a healthy harvest. To truly get ahead of this locust catastrophe and prevent a humanitarian crisis, there must be a shared commitment among partners at the global and local level to invest in innovative solutions and ensure they are made available to farmers like Pius Nyagah Muchenge who are trying to hold out hope:

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Understanding the Enemy: a Background on Locusts



The current locust crisis is only the latest example of the devastation that crop pests can cause. Did you know that insects represent the largest biomass on earth? There are over 30 million known species of insects, both beneficial and destructive. Beneficial insects like honey bees, lady bugs and monarch butterflies are beneficial to our ecosystem by pollinating (bees and monarchs) or being predatory (lady bugs) by eating harmful insects. While only a fraction, approximately 600 species, are categorized as destructive insects, if left unchecked, the pests could destroy 30-60% of crop harvests. They not only cause devastating damage to crops — but can serve as vectors for diseases like malaria and dengue.

The most destructive locust species is the desert locust. Adults have a voracious appetite and can eat their own weight daily. They are found in the deserts of some 30 countries throughout Africa, Asia and the Middle East during quiet times. In an outbreak, the locusts can quickly multiply, form swarms and migrate over large distances, traveling up to 95 miles a day. Swarms regularly cross the Red Sea, which is 186 miles wide, and in 1954, a swarm travelled from northwest Africa to [Great Britain](#). In the summer of 1988, swarms of locusts originating in North Africa crossed the Atlantic Ocean and invaded the [Caribbean](#) and neighbouring parts of South America for the first time in recorded history.

Each square kilometer locust swarm is made up of 40 - 80 million locusts, but swarms can reach hundreds of millions. One tonne of locusts alone (about 500,000 insects) – a fraction of an average swarm – eats about as much food in one day as [10 elephants, 25 camels or 2,500 people](#), destroying at least 200 tonnes of vegetation per day. A massive swarm that hit Kenya measured 2400 km² (almost 930 mi²) and was made up of [200 billion locusts](#). The insatiable pests consumed nearly 400,000 tons of food every 24 hours– the equivalent to what 84 million people eat daily.

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