Genetically-modified organisms

What is the issue?

- A Brazil-based company found a technology to modify the mosquito genome to destroy the Aedes aegypti mosquito.
- This gene creates an offspring that dies before reproducing.

What is sowing a fear?

- Through this experiment, the population of the targeted mosquito species is drastically reduced in a few generations.
- **Yale University study** - To find the effects of the use of genetically-engineered mosquitoes to kill the dengue-, Zika- and chikungunya-causing Aedes aegypti mosquitoes.
- The scientists suggest that,
    1. The field trials went wrong.
    2. This would very likely result in a more robust population of mosquitoes than the pre-release population due to hybrid vigour.
    3. It is unclear how this may affect the efforts to control these dangerous vectors.
- That is enough to sow fear and uncertainty in the minds of thoughtful people and create scary headlines around the world.
- Unfortunately, the paper offered no data at all to support the “very likely" assessment.
- The journal subsequently said that the editors have received criticisms and will offer a response once they have been resolved.
- Most of the time, anything genetically-modified does not get good press. Good scientists know this and are careful in their communications.

What is at stake?

- At stake are the prospects of a promising way to control the population of mosquitoes and the growing risk they pose to human health and welfare.
- **Concern** - While this way to control mosquitoes appears to be effective and selective, unintended long-term consequences is a concern.
- The methods we use to kill mosquitoes may come back and haunt us.
- It’s possible that the absence of the bloodsucking Aedes mosquito might be more detrimental to other life on earth than its presence.

Why should we take the risk?

- **A 2016 estimate** - The economic burden of dengue in India, the direct and indirect costs of that disease alone is around $1.1 billion per year.
- This is an underestimate because it ignores broader opportunity costs.
- The burden imposed by malaria, a disease spread by the Anopheles mosquito, is so large that it is macro-economically significant.
- In India, there were over 9 million reported cases that caused around 16,000 deaths in 2017.
- Almost everyone in India (94% of the population), remains at risk.
- **In the future** - Rising temperatures and changing weather patterns may exacerbate malaria risks in the northern and north-eastern states.
- That is the states with weaker public health systems are at risk of a higher disease burden.

What should India do?

- There’s no ethical reason to grant the mosquito a reprieve merely on it belonging to a different species.
- Indeed, there is a moral case for us to use every possible means to control harmful mosquito species.
- If genetic technology presents us with an opportunity, India must remain open to it.
- It is important for projects like the ongoing caged trials in Maharashtra, to progress to the next level.
- India has an interest in the continuation of trials and release of genetically-engineered mosquitoes around the world.
- Given the direct human costs of the mosquito-borne diseases, we must not be shy of carefully taking calculated risks in trying out new solutions.
- Despite the recent controversy over the results in Brazil, no one is contesting the fact that the trial was successful in reducing the Aedes mosquito population.
- No negative impact was observed even after a couple of years.
- Even as they stay sensitive to the risks of unintended consequences, our policymakers must not lose sight of the promise of that finding.

Source: Live Mint



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