Solution to Reduce Wastage of Pesticides

Why in news?

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CSIR has found a lipid compound to reduce the wastage of pesticides by slippage.

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What is CSIR?

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- The Council of Scientific & Industrial Research (CSIR) is India's contemporary R&D organization.
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- It is known for its cutting edge R&D knowledgebase in diverse S&T areas.
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- CSIR's R&D expertise and experience is embodied in about 4600 active scientists supported by about 8000 scientific and technical personnel.
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- It provides significant technological intervention in many areas with regard to societal efforts which include environment, health, drinking water, food, housing, energy, Farm and non-farm sectors.
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How CSIR's recent innovation will reduce pesticide wastage?

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- The CSIR has identified a lipid compound known as Glyceryl-Mono-Oleate (GMO), a natural wax-like solid extracted from sunflower oil.
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- The structure of this compound is that it's one end is hydrophilic (water-attracting) and the other end is hydrophobic (water-repelling).
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- When this compound is mixed with pesticides, the liquid sticks to the leaves and doesn't fall off to the ground.
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- When the solution was sprayed the lipid GMO nanoparticles rush to the leaf surface and quickly spread out to make a thin film on the leaves.
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- This thin film is hydrophilic on the outside and hydrophobic on the inside resulting in the water-pesticide mix sticking strongly on the leaves.
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What is the significance of this innovation?

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- The pesticides are sprayed on to the crops which increases its slippage into the ground.
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- This residue of pesticides then leeches to the ground, mixes with the water cycle and the food chain which has long term consequences for man.
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- From economical point, large of amount of pesticides have to be sprayed to keep the plants away from insects and pests.
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- Since, the pesticides don’t stick to the leaf, farmers locally mix pesticides with soap water which is not a viable solution.
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- This forced the scientists to work on finding a solution for this small yet significant problem and found an innovative solution which is safe for the whole ecosystem.
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Source: The Indian Express

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