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Q63

With reference to the Genetically Modified mustard (GM mustard) developed in India, consider the following statements:

1. GM mustard has the genes of a soil bacterium that give the plant the property of pest-resistance to a wide variety of pests. 2. GM mustard has the genes that allow the plant cross-pollination and hybridization. 3. GM mustard has been developed jointly by the IARI and Punjab Agricultural University. Which of the statements given above is/are correct? (a) 1 and 3 only (b) 2 only (c) 2 and 3 only (d) 1, 2 and 3 Official key: B.

UPSC Civil Services Prelims 2018 · General Studies · 2 marks · Current Affairs and GK

Current events, government schemes, miscellaneous GK - Prelims GS Paper I.

Explanation**(a)**

(a) 1 and 3 only. **DMH-11** mustard is not a Bt-style wide pest-resistance crop; barnase/barstar/bar genes are a hybridisation system, not a general insecticide. It was developed at the University of Delhi South Campus (**Deepak Pental** group), not jointly by IARI and PAU. Both 1 and 3 are false. This option is not the key.

(b) Official key

(b) 2 only. GM mustard uses the barnase-barstar male-sterility/restorer toolkit so that the plant can be cross-pollinated and hybrids produced at scale. That is statement 2. Statements 1 and 3 do not hold. This option is the official key.

(c)

(c) 2 and 3 only. Statement 2 is correct, but IARI-PAU joint development is not. This option is not the key.

(d)

(d) 1, 2 and 3. Pest-resistance and the IARI-PAU claim are wrong, so the full set fails. This option is not the key.

Summary

• **Official key is (b) 2 only. Indian GM mustard (DMH-11) is a hybrid-seed technology:** soil-bacterium genes create male sterility and restoration so breeders can enforce cross-pollination. It is not a broad-spectrum pest-resistant Bt mustard, and it was not a joint IARI-Punjab Agricultural University product. Only statement 2 is therefore correct. That maps to option (b).

Related possible facts

These can be asked in a future Prelims paper.

DMH-11

Transgenic mustard hybrid of the Delhi University team

Barnase-barstar-bar

Male sterility, restorer and herbicide-tolerance cassette

GEAC

Appraises environmental release of GM crops in India

Bt crops

Cry genes for insect resistance-distinct from GM mustard's purpose

Deepak Pental

Lead scientist associated with the mustard event

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