

(Genetic engineering (crops, insulin))

Q1.a)(2020)

**golden rice has improved
nutritional value**

Q1.b)(2020)

any **one** from:

- gene may contaminate / enter other breeds / species
- reduction / extinction of population of wild / traditional rice
- reduction / extinction of population of flowers / insects
- high cost of seeds
- may have too much vitamin A (in diet)

Q2.a)(2024)

- glyphosate kills weeds but does not harm GM soya
- (so) less competition for light / water / ions / (named) minerals / (named) salts / space
- more light / water for photosynthesis
 - (so) more glucose produced
- more glucose for
 - respiration for energy
 - cellulose for cell walls
 - starch for stored energy / glucose (in soya beans)
 - protein for cell structure / storage (in soya beans)
 - lipids for energy storage (in soya beans)
- more water for
 - turgor / support
 - transport
 - medium for reactions
 - hydrolysis / digestion of (stored) organic substances
- more magnesium
 - for chlorophyll
- more nitrate
 - for amino acids / proteins
- more phosphate
 - for DNA

Q2.b)(2024)

any **two** from:

- do not know effects on animals / humans (when eaten)
- gene / allele may be transferred to other (wild) plants
- reduce biodiversity
- increased cost of seed (for farmers)
or
increased cost to consumer (for product)
- may affect flavour / taste (of product)