

WJEC (Eduqas) Biology GCSE
Topic 7.4 Selective Breeding and
Gene Technology
Questions by Topic - Mark
Scheme

Sub-section	Mark	Answer	Accept	Neutral answer	Do not accept
1. (a)	1	Less objection/ more agreement / more positive /more accepted /more popular;			Crop increased
(b)	2	<u>gene for herbicide resistance</u> from {bacteria / plant / organism /species}; {Inserted into/ added into} {chromosome/ DNA} (of host plant / soya plant);	weed		
(c)	3	Any three from <ul style="list-style-type: none"> • Crop yield increases with use of GM; • GM crop not 100% resistant; • GM plants not resistant to sap sucking insects/ sap sucking insects are not affected; • GM effective against leaf eating insects/ GM plants are resistant to leaf eating insects; • Less <u>total</u> insecticide used with GM crops/ less insecticide used to control leaf eating insects with GM crops; • A correct statement relating to data in table; 			
Total Mark	6				

2.

Question	Marking details	Marks Available												
(a)	<p>Kills the weeds/ plants (reject animals/ pests);</p> <p>Reject stop weeds growing</p> <p>that compete (with the crop)/ {more room/ nutrients/ light} for crop;;</p>	2												
(b)	<p>(i) 2 4 (5) 3 1 6 ;;;;</p> <p>5 correct = 4</p> <p>4 correct = 3</p> <p>3 correct = 2</p> <p>2 correct = 1</p> <p>1 correct = 0</p>	4												
(ii)	<table border="1"> <thead> <tr> <th>Argument</th> <th>✓ or ✗</th> </tr> </thead> <tbody> <tr> <td>Increased crop yield</td> <td>given</td> </tr> <tr> <td>Less herbicide used</td> <td>given</td> </tr> <tr> <td>Reduced biodiversity</td> <td>✗</td> </tr> <tr> <td>Cheaper food</td> <td>✓</td> </tr> <tr> <td>Long term effects unknown</td> <td>✗</td> </tr> </tbody> </table>	Argument	✓ or ✗	Increased crop yield	given	Less herbicide used	given	Reduced biodiversity	✗	Cheaper food	✓	Long term effects unknown	✗	1
Argument	✓ or ✗													
Increased crop yield	given													
Less herbicide used	given													
Reduced biodiversity	✗													
Cheaper food	✓													
Long term effects unknown	✗													
	<p>All 3 correct for 1 mark;</p>													
(iii)	<p>Any two from,</p> <p><u>Cost of extra</u> herbicide/ farmers have to <u>buy extra</u> herbicide;</p> <p>Competition from (resistant)soya/ description of competition;</p> <p>Herbicide kills maize;</p>	2												
	<p>Question 2 Total</p>	[9]												

3.

Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
(b)	i	1	Japan;			
	ii	1	9;			
	iii	2	number of cases of blindness decreases/ no blindness/ prevents blindness; Because {they / both groups} are now {reaching RDA/ having enough vitamin A}; 2nd mark linked to 1st	plenty of vitamin A/ stops vitamin A deficiency		more vitamin A
(c)		2	health concerns from <u>eating</u> GM foods/ <u>eating</u> GM crops {will harm them/ have side effects}; concerns about GM organisms breeding with native organisms.	eating GM crops will poison them/ they do not if it is safe to eat		

4.

Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
(a)		1	Dieldrin and It {does not break down/ still remains} after 40 days;	Breaks down more slowly/ lasts longer		
(b)	(i)	2	Gene cut out of insect { <u>chromosome/ DNA</u> }; Inserted into { <u>chromosome/DNA</u> } of bacterium;	plasmid		