

# **Additional Applied Science A**

General Certificate of Secondary Education

Unit **A334/01**: Agriculture and Food

## **Mark Scheme for June 2011**

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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**1** Abbreviations, annotations and conventions used in the detailed Mark Scheme.

/	= alternative and acceptable answers for the same marking point
<b>(1)</b>	= separates marking points
<b>not</b>	= answers which are not worthy of credit
<b>reject</b>	= answers which are not worthy of credit
<b>ignore</b>	= statements which are irrelevant
<b>allow</b>	= answers that can be accepted
( )	= words which are not essential to gain credit
—	= underlined words must be present in answer to score a mark
ecf	= error carried forward
AW	= alternative wording
ora	= or reverse argument

Question		Answers	Marks	Guidance
1	a	arable farming <input type="checkbox"/> dairy farming <input type="checkbox"/> poultry farming <input type="checkbox"/> horticulture <input checked="" type="checkbox"/>	1	2 or more ticks = 0
	b	eat them/suck sap/carry virus/ disease/kill or destroy/slow or reduce the growth/stop the growth	1	
	c	i herbicides <input type="checkbox"/> hormones <input type="checkbox"/> insecticides <input checked="" type="checkbox"/> insectivores <input type="checkbox"/>	1	2 or more ticks =0
	c	ii different (1) very quickly (1)	2	
	c	iii drift / contaminates crop / cost / kills or harms useful insects or other organisms / enters food chain (1)	1	
	d	pollination leading to fruit formation/transfer of pollen (1) so plants are fertilised/ make new plants/fruits (1) dispersal of seeds/ fruits (1) so avoids competition/ colonises new ground (1) may kill insect pests (1)	2	either two reason or one reason plus explanation <b>accept</b> ref to bees, <b>ignore</b> give them nutrients
<b>Total</b>			<b>[8]</b>	

Question		Answers	Marks	Guidance
2	a	eat less/ uses less grass or food (1) produce leaner meat (1) idea of keep more in the same space (1)	2	<b>accept</b> reference to being kept in small area
	b	milk / manure (1) meat/ beef/ leather (1)	2	<b>reject</b> milk products e.g. cheese and yoghurt <b>accept</b> any named part e.g. liver, kidney for whole organism harvest
	c	i		
		encourages spread of diseases <input type="checkbox"/>	1	
		GM contamination <input type="checkbox"/>		
		drug free produce <input type="checkbox"/>		
		high yield <input checked="" type="checkbox"/>		
	c	ii		
		encourages spread of diseases <input checked="" type="checkbox"/>	1	
		GM contamination <input type="checkbox"/>		
		drug free produce <input type="checkbox"/>		
		high yield <input type="checkbox"/>		
	d	cost of altering/buying (milking) machines/ cost of altering fences	1	
	e		2	
		amount of sunlight <input type="checkbox"/>		
		availability of food and water <input checked="" type="checkbox"/>		
		electric milking machines <input type="checkbox"/>		
		pests and diseases <input checked="" type="checkbox"/>		
		use of fertilisers <input type="checkbox"/>		
<b>Total</b>			<b>[9]</b>	

Question		Answers	Marks	Guidance
3	a	germination (1)	1	
	b	<p>After 50 years beech <input type="checkbox"/></p> <p>Between 90 and 100 years both <input checked="" type="checkbox"/></p> <p>At 50 years <input type="checkbox"/></p> <p>In the first 25 years. <input checked="" type="checkbox"/></p>	2	more than 2 ticks deduct a mark for each incorrect answer
	c	0.3	1	<b>accept</b> values from 0.28 – 0.32
	d	less growth after 50 years / more growth before 50 years / optimum growth rate finished (1)	1	do not accept the idea that they <u>are</u> fully grown, rather the idea that <u>most</u> or almost all of the growth has occurred.
	e	<p>poor soil (1)</p> <p>wrong pH of soil (1)</p> <p>lack of water (1) lack of minerals or nutrients (1)</p> <p>exposure to wind (1)</p> <p>too hot / too cold temperatures (1)</p> <p>pests (1)</p> <p>diseases (1)</p> <p>overcrowding / competition (1)</p> <p>natural disasters (1)</p> <p>pollution (1)</p>	2	<p>any two correct answers</p> <p><b>ignore</b> vague answers referring to weather</p> <p><b>ignore</b> sunlight</p> <p><b>ignore</b> “temperature” on its own</p>
	f	width/ girth/ diameter or circumference of trunk/ volume/mass/ weight / growth rings	1	<b>accept</b> span or spread of canopy
	g	<p>cotton <input type="checkbox"/></p> <p>leather <input type="checkbox"/></p> <p>paper <input checked="" type="checkbox"/></p> <p>wool <input type="checkbox"/></p>	1	
<b>Total</b>			<b>[9]</b>	

Question		Answers	Marks	Guidance
4	a	transporting to factory	1	<b>accept</b> stage 2
	b	i	1	photosynthesis
	b	ii	2	in any order <b>accept</b> food or sugar instead of glucose <b>accept</b> symbols if correct
	c	flowers seeds stems roots whole plant	1	2 or more ticks=0
	d	sugar used (as food) (1) to carry out respiration (1) carbon dioxide given off (1) forming bubbles in the dough (1)	2	any two
	e	dies/ killed	1	
	f	less wheat or bread produced / poor harvest/ less available (1) higher demand (1) increased fuel/ transport/equipment costs (1) increased cost of ingredients (1) so more expensive (1)	2	supply and demand = 2 marks do not give a mark for 'no wheat grown in winter' <b>accept</b> reverse argument <b>reject</b> cheaper or more expensive if no attempt has been made to give a reason
		<b>Total</b>	<b>[10]</b>	
		<b>Paper total</b>	<b>[36]</b>	

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