Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate 2016

Marking Scheme

Agricultural Economics

Higher Level

Note to teachers and students on the use of published marking schemes

Marking schemes published by the State Examinations Commission are not intended to be standalone documents. They are an essential resource for examiners who receive training in the correct interpretation and application of the scheme. This training involves, among other things, marking samples of student work and discussing the marks awarded, so as to clarify the correct application of the scheme. The work of examiners is subsequently monitored by Advising Examiners to ensure consistent and accurate application of the marking scheme. This process is overseen by the Chief Examiner, usually assisted by a Chief Advising Examiner. The Chief Examiner is the final authority regarding whether or not the marking scheme has been correctly applied to any piece of candidate work.

Marking schemes are working documents. While a draft marking scheme is prepared in advance of the examination, the scheme is not finalised until examiners have applied it to candidates' work and the feedback from all examiners has been collated and considered in light of the full range of responses of candidates, the overall level of difficulty of the examination and the need to maintain consistency in standards from year to year. This published document contains the finalised scheme, as it was applied to all candidates' work.

In the case of marking schemes that include model solutions or answers, it should be noted that these are not intended to be exhaustive. Variations and alternatives may also be acceptable. Examiners must consider all answers on their merits, and will have consulted with their Advising Examiners when in doubt.

Future Marking Schemes

Assumptions about future marking schemes on the basis of past schemes should be avoided. While the underlying assessment principles remain the same, the details of the marking of a particular type of question may change in the context of the contribution of that question to the overall examination in a given year. The Chief Examiner in any given year has the responsibility to determine how best to ensure the fair and accurate assessment of candidates' work and to ensure consistency in the standard of the assessment from year to year. Accordingly, aspects of the structure, detail and application of the marking scheme for a particular examination are subject to change from one year to the next without notice.

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Note regarding the Marking Scheme

The support notes presented are neither exclusive nor complete. Any Examiner unsure of the validity of the approach adopted by a particular candidate should contact his/her Advising Examiner.

Relevant points of information presented by candidates are marked and rewarded on their merits.

The level of detail required in any answer is determined by the context and the manner in which the question is asked, and by the number of marks assigned to the answer in the examination paper. Requirements may therefore vary from year to year.

Words, expressions, or phrases must be correctly used in context and not contradicted, and where there is evidence of incorrect use or contradictions the marks may not be awarded.

Summary of Mark Allocations

PART 1 (120 Marks)

Answer 15 questions from 20. 8 marks per question.

1.	4m + 4m	**11.**	3m + 3m + 2m
2.	4m + 2m + 2m	**12.**	4m + 4m (2 + 2)
3.	2m + 3m + 3m	**13.**	2m + 2m + 2m + 2m
4.	4m + 2m + 2m	**14.**	3m + 3m + 2m
5.	2m + 2m + 4m	**15.**	4m + 4m
6.	2 x 4m	**16.**	2 x 4m
7.	4m + 4m	**17.**	4m + 4m
8.	4m (2 + 2) + 4m	**18.**	2 x 4m
9.	4m + 4m	**19.**	4m + 4m
10.	4m + 4m	**20.**	3m + 3m + 2m

PART 2 (200 Marks)

Answer 4 questions from 6. 50 marks per question.

1.	**(a)**	8m	**4.**	**(a)**	10m
	(b)(i)	14m		**(b)(i)**	6m
	(b)(ii)	14m		**(b)(ii)**	9m
	(b)(iii)	14m		**(b)(iii)**	15m
				(b)(iv)	10m
2.	**(a)**	6m			
	(b)(i)	10m	**5.**	**(a)(i)**	8m
	(b)(ii)	10m		**(a)(ii)**	18m (9m + 9m)
	(c)(i)	12m		**(b)**	14m
	(c)(ii)	12m		**(c)**	10m
3.	**(a)(i)**	12m	**6.**	**(a)(i)**	6m
	(a)(ii)	11m		**(a)(ii)**	6m
	(a)(iii)	7m		**(a)(iii)**	6m
	(a)(iv)	10m		**(b)(i)**	16m
	(b)	10m		**(b)(ii)**	16m

Support Notes

PART 1 (120 Marks)

Answer 15 questions from 20. 8 marks per question.

<table>
<tr><th colspan="3">PART 1</th></tr>
<tr><td>1.</td><td>(i) A cost expressed in terms of the next best alternative foregone.
(ii) The opportunity cost of planting potatoes can be an alternative crop (e.g. carrots) that could have been planted instead</td><td>4
4</td></tr>
<tr><td>2.</td><td>(i) Wheat
(ii) There is a greater number of substitutes in production for wheat in comparison to cereals i.e. it is easier for a farmer to switch from wheat production to producing other cereal crops, than it is for a cereal farmer to leave the industry and enter another (e.g. beef). This arises due to the ease of factor mobility.</td><td>4
2 + 2</td></tr>
<tr><td>3.</td><td><table><tr><th>Livestock type</th><th>Cattle</th><th>Pigs</th><th>Sheep</th></tr><tr><td>Letter on graph (A, B, or C)</td><td>A</td><td>C</td><td>B</td></tr></table></td><td>2 + 3 + 3</td></tr>
<tr><td>4.</td><td>This refers to the fact that farmers must keep their land in good agricultural and environmental condition, and must comply with Statutory Management Requirements on the environment, food safety, and animal welfare standards. Failure to meet the requirements may result in their CAP direct payment being withheld, either partially or fully.</td><td>4 + 2 + 2</td></tr>
<tr><td>5.</td><td>(i)
• average age of farmers is older thus past their managerial prime;
• limited methods for new and young farmers with managerial skills to enter the industry (purchase or inheritance);
• slow turnover of farmers enables farmers with poor managerial skills to remain entrenched;
• levels of education and training for farmers in management skills;
• resources may be limited – e.g. land or capital.

(ii)
• early retirement scheme;
• incentives for farm partnership to transfer to younger generation;
• dissemination of research findings and new operational techniques, training and advisory service (Teagasc);
• provision of incentives for young farmers to gain educational qualifications.</td><td>2 + 2

4</td></tr>
</table>

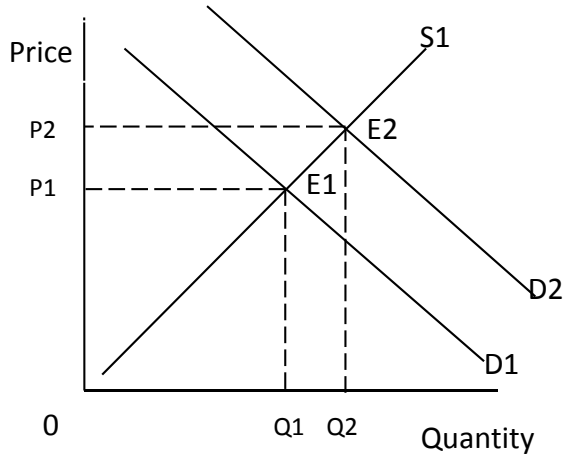
PART 1		
6.	• Macra targets young farmers (17-35 years old) and thus helps to maintain a younger demographic within agriculture and rural areas. • Macra helps young farmers get established in farming through training and skills development (e.g. farm walks and meetings), and through the land mobility scheme. These activities help insure a vibrant rural community is maintained. • Macra encourages social activities amongst young farmers and thus helps address issues of rural isolation. • Macra activities includes a number of social activities including debates and acting, which help bring social activities to the wider rural community. • Macra represents the views of young farmers in discussions and lobbying of government. This benefits rural development policy.	2 x 4m
7.	The 'Capitalised Value of a Factor of Production' is that sum of money which, if invested, would provide the same income stream as the factor.	4 + 4
8.	**(i)** The total number of people at work (part or full time) plus the number of people unemployed. **(ii)** Quarterly National Household Survey (QNHS)	4 (2 + 2) 4
9.	**(i)** • Improvements in technology • Improved husbandry • Better weather • Better control of disease / pests **(ii)** • Improvements in technology or husbandry enable more to be produced with same inputs • Improved weather / reduced disease or pests leads to less loss of yield.	4 4
10.	Partial budgets are most commonly used each time a change is planned or introduced that will affect a part of a farming business (e.g. expanding a herd size or investing in new capital).	4 + 4

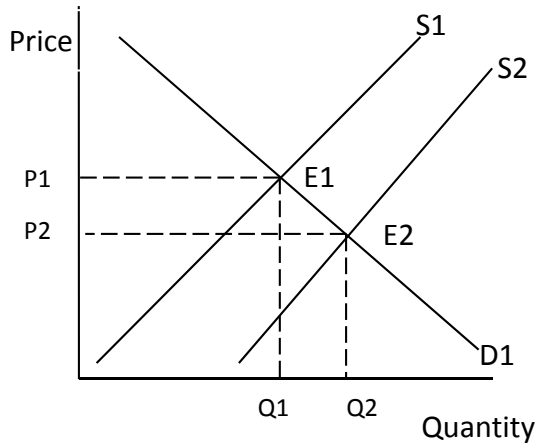
PART 1		
11.	A small open economy participates in international trade, but is small enough compared to its trading partners that its policies do not alter world prices, interest rates, or incomes. Countries with small open economies are price takers. e.g. If U.S. economy is in recession then the world economy is likely to suffer. A recession in Ireland will likely not impact on the world economy to a great extent.	3 + 3 + 2
12.	**(i)** Complements **(ii)** Complements in consumption are two goods that are consumed together (e.g. tractor and diesel). Thus, as the price of one increases, the quantity demanded of that good decreases, and thus the demand (and quantity demanded) of the complementary good also decreases.	4 4 (2 + 2)
13.	**(i) Advantages:** • Increase in demand may increase prices • Less bureaucracy / red tape / regulation – due to reduced trade barriers • Improved opportunity for more expansion or growth for more productive farmers **(ii) Disadvantages** • Prices may fall / become more volatile • Increased import competition can reduce domestic demand	2 + 2 2 + 2
14.	Nominal GDP is a figure that expresses the values of gross domestic output in a country using current prices. Real GDP makes an adjustment to nominal GDP by using a base year as a benchmark that reflects changing prices, such as price changes due to inflation or deflation. Real GDP allows economists to accurately measure changes in the economic growth or decline of a country over several years.	3 + 3 + 2
15.	**(i)** 57 **(ii)** 72%	4 4
16.	• Family partnership must draw up a profit-sharing agreement, which determines how profits are to be divided within the partnership and how the tax credit is to be divided. • The family partnership agreement must allow for the transfer of ownership to the younger partner within a period of 10 years. • The younger partner in the family must be aged less than 40 at the time of the partnership's establishment.	2 x 4m

PART 1		
17.	"inelastic" "decreased"	4 4
18.	• Input costs e.g. feed, fertilisers and seed • Government regulations • Price of related goods (joint and competing goods) • Cost of production of related goods • Technology of production • Weather / pests / disease.	2 x 4m
19.	**(i)** World Trade Organisation **(ii)** Transatlantic Trade and Investment Partnership	4 4
20.	This occurs when the quantity supplied of a product such as pigs has to be planned before the market price is known. Thus, if the price of pigs is higher than expected this year, farmers may decide to increase the level of output next year. This increase in supply reduces the market price, thus creating an incentive for farmers to reduce the quantity supplied the following year. Thus, production and price enters a cycle based upon the assumption producers base their plans for quantity produced upon prices observed in the previous time period.	3 + 3 + 2

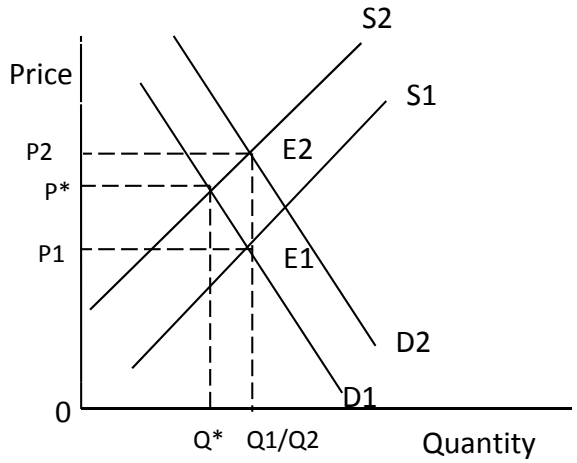
PART 2 (200 Marks)

Answer 4 questions from 6. 50 marks per question.

PART 2: Question 1	
(a) A change in demand refers to a shift in the demand curve. Thus the quantity demanded of a good or service changes at each and every possible price. (Such a shift in the demand curve can be created by any factor that affects the buying decision of consumers, with the exception of a change in the price of the good or service.) A change in the quantity demanded refers to a movement along the demand curve due to a change in price.	**8m** 2 + 2 2 + 2
(b)(i)  Both the market price and market quantity will increase. In the run up to Christmas, there is an increase in the demand for turkeys (represented in the above diagram by a shift from D1 to D2). Therefore, as the market moves to a new point of equilibrium (E1 to E2), both the market price (P1 to P2) and quantity demanded (Q1 to Q2) increases.	**14m** 8 3 x 2m

PART 2: Question 1	
(b)(ii)  A food scare affecting geese will create a reduction in demand for that product, thus reducing its market price. As market price is reduced, farmers will substitute to producing more turkeys as it becomes relatively more profitable. The Supply Curve shifts to the right. Thus the increase in supply of turkey (S1 to S2 in the above diagram) will create a decrease in the market price for turkeys (P1 to P2) and an increase in the quantity (Q1 to Q2).	**14m** 8 3 x 2m

PART 2: Question 1	
(b)(iii)	**14m**



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The market price will increase, while the impact on market quantity is uncertain. It may increase or decrease. It will be determined by which effect (change in demand or supply) is strongest.

The increase in cost for turkey feed will lead to a reduction in supply (S1 to S2), thus putting upward pressure on market price (P1 to P*) and downward pressure on market quantity (Q1 to Q*).

However, the report publication will increase demand (D1 to D2 on the diagram). This will put further upward pressure on market prices (P* to P2), while also putting upward pressure on market quantity (Q* to Q2) and thus counteracting the supply effect.

Thus, while both the change in demand and supply put upward pressure on market prices (P1 to P2), the impact on market quantity is uncertain (in the diagram the effect of demand and supply exactly offset each other and thus quantity remains unchanged at Q1/Q2). If the demand effect is stronger, market quantity will increase. On the other hand, market quantity will fall if the change in supply is stronger than the change in demand.

3 x 2m
+
1 x 1m

PART 2: Question 2	
(a) Explain what is meant by the term 'Income Elasticity of Demand'. Income elasticity of demand measures the degree of responsiveness in demand for a product to a change in income. More specifically, it tells us the percentage change in quantity demand as a result of a one per cent change in consumer income. It is stated as the percentage change in quantity demanded divided by the percentage change in income.	**6m** 3 + 3
(b)(i) Food products that are a dietary staple (e.g. milk in Ireland) are likely to be more income inelastic than goods that are non-staples. This is because people see staple foods as more necessary and they are therefore less likely to alter their level of intake as income changes.	**10m** 5 + 5
(b)(ii) Income elasticity of demand for food products tends to be more inelastic in a relatively wealthy country. Thus, a change in income in a country that is already relatively wealthy is unlikely to lead to a large percentage change in the demand for food products.	**10m** 5 + 5
(c)(i) Income elasticity of demand for good X: $\frac{\Delta Q}{\Delta Y} \times \frac{Y_1+Y_2}{Q_1+Q_2} = \frac{195-130}{35{,}000-30{,}000} \times \frac{30{,}000+35{,}000}{130+195}$ $= \frac{65}{5{,}000} \times \frac{65{,}000}{325}$ $= 2 \cdot 6.$	**12m** 8 4
(c)(ii) Good Y is an inferior good. For each one per cent increase in income the quantity demanded decreases by 0.5 per cent. Negative Income Elasticity of Demand. Good Z is a luxury good. For each one per cent increase in income the quantity demanded increases by more than one per cent. Positive Income Elasticity of Demand (greater than 1). **or** Good Z is a normal good. For each 1 per cent increase in income, the quantity demanded increases. Positive Income Elasticity of Demand.	**12m** 6m (4 + 2) 6m (4 + 2)

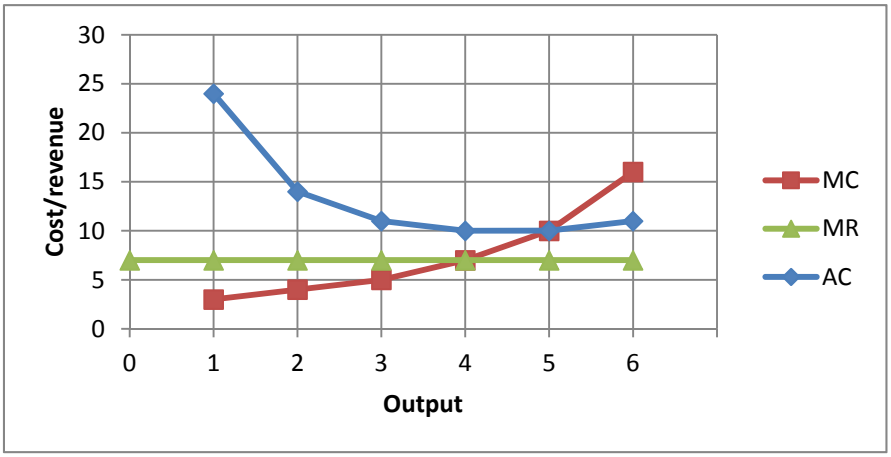
PART 2: Question 3

(a)(i) **12m**

Output	0	1	2	3	4	5	6
Total cost (€)	21	24	28	33	40	50	66
Marginal Cost (€)	–	3	4	5	7	10	16
Average Cost (€)	–	24	14	11	10	10	11

12 x 1m

(a)(ii) **11m**



11
(3 x 3m
+ 2 x 1m)

(a)(iii) Profit-maximising level of output = 4. **7m**

The profit-maximising level of output is the one for which marginal costs equal marginal revenue.

At each level of output preceding this point (i.e. 1 to 3 units) the revenue from each additional unit of output (i.e. marginal revenue) exceeds the additional cost of producing that unit of output (i.e. marginal cost). Thus increasing the level of output would lead to increased profit. Beyond 4 units of output, marginal costs exceed marginal revenue. Thus to produce beyond 4 units of output would result in reduced profits.

4 + 3

(a)(iv) Profit or loss = total revenue – total costs **10m**

Total revenue = price × quantity = 7 × 4 = €28

Total cost = average cost × quantity = 10 × 4 = €40 [or: given in table]

Profit or loss = 28 – 40 = – €12 (i.e. loss of €12)

6 + 4

PART 2: Question 3	
(b) • Farmer income doesn't take account of other sources of income, e.g. off-farm employment • Relative tax burden for farmers and other groups may be significantly different • Income doesn't take into account wealth ownership, which is often much greater among farmers due to ownership of assets such as land • Farmer income includes returns on capital and management as well as labour. Income in many other sectors is return on labour alone.	**<u>10m</u>** 3m or 5m for each point to a maximum of 10m

PART 2: Question 4	
(a) • Monitoring of actual financial performance against planned financial performance • To help plan new investments • Necessary support for application for bank finance	**10m** 2 x 5m
(b)(i) **A** = 35,000 **B** = 20,000 **C** = 49,900	**6m** 3 x 2m
(b)(ii) Repayment capacity = $\frac{4{,}000}{160} \times 1{,}000$ = €25,000 No. Tom cannot afford to meet the repayments on the loan (as his repayment capacity is less than €30,000). Tom's annual repayments would be €4,800 per year (30 x 160). His closing cash for 2017 will be only €4,000, not enough to fund the loan.	**9m** "No" = 3m Reason: 6m (2 + 2 + 2)
(b)(iii) • Sell some of his assets (e.g.livestock) to raise cash. This measure could however lead to further cashflow issues in future years. • Finance any planned capital expenditures with credit instead of cash flow, or postpone capital investment plans until another year. • Discuss with creditors and bank the possibility of restructuring debt and reduce monthly payments (e.g. lengthening the repayment period). • Reduce non-farm expenditures and/or increase non-farm income. • Increase farm income (e.g. diversity / value-added (e.g. yoghurt, ice-cream)) and/or decrease farm costs. • Use intermediate debt financing to meet cash flow shortages (e.g. business loan). This should only be considered where it is believed the cash flow problems will only persist in the short term and sufficient cash flow will arise in the intermediate term to meet these increased debt repayments.	**15m** 3 x 5m (3+2)

PART 2: Question 4	
(b)(iv) • Move the timing of some sales (e.g. calves) to increase cash flow in deficit periods. • Discuss with creditors and bank the possibility of moving the due date on payments to a time when cash flow is in surplus. • Increase short-term borrowing (e.g. overdraft) in periods with deficit cash flow, and project repayment in periods with surplus cash flow.	**<u>10m</u>** 2 x 5m (3+2)

PART 2: Question 5	
(a)(i) There is a general downward trend in EU production in this period, while world production is predicted to increase significantly over the same period.	**8m** 4 + 4
(a)(ii) *Increase in global production:* • Economies of scale in countries such as Brazil • Reduction in trade barriers giving beef producing countries easier access to large markets (e.g. EU, China) • Increase in incomes, especially amongst middle class, in emerging economies, combined with changes in nutritional tastes is creating increased demand for beef. Thus many beef producing countries are increasing output to meet this demand. • Development of better husbandry and breeding techniques.	**9m** 5 + 4
(a)(ii) *Decrease in EU production:* • EU targets in terms of environmental protection and effect on beef output • Long-term changes in CAP policy and a general move away from output based payments. Although this occurred a number of years ago, farmers are still adjusting to the change. • Increased input costs in the EU • Increased competition from imports into the EU • Changing demographics (aging population) and tastes within EU are affecting demand in the traditional market of many EU producers. • The abolition of milk quotas could see beef farmers changing to dairy.	**9m** 5 + 4

PART 2: Question 5	
(b) • The green image of Irish beef is well established and can be promoted further through actions of groups such as Bord Bia and producers (e.g. traceability). This gives Ireland an advantage in markets where consumers are becoming more health aware. • Ireland has a comparative advantage in the production of grass based beef. The suitability of Irish land and climate to grass production gives producers cost advantage over producers in other countries. • The food processing sector in Ireland is well established, with global reach and economies of scale (e.g. ABP Foods, Kerry Group and Glanbia). This gives Irish beef easy access to various markets and helps with the development of value added products. • Irish beef producers benefit from an extensive research and development sector, led by organisations such as Teagasc. This is important in developing advantages in areas such as genomics research. • The Bord Bia Quality Assurance scheme ensures exported beef is of the highest international standard.	**14m** 2 x 7m (4 + 3)
(c) *Explain what this statement means*: Few of the inputs required to produce Irish beef are imported (e.g. feed, fertilizer and machinery). The majority of inputs are sourced from within Ireland (e.g. land, labour). For non-agricultural exports there is a much greater reliance on imported inputs. *Outline why it is a positive aspect*: This is a positive aspect of Irish beef production as it allows much more of the value generated by exports to be retained in the country in the form of payments on land, labour and capital to Irish suppliers. In non-agricultural sectors, much of this export value is lost through payments to foreign suppliers.	**10m** 5 5

PART 2: Question 6	
(a)(i) The effectiveness of productive effort as measured in terms of the rate of output per unit of input. Any ratio of output to input. It is computed by dividing average output in a given period by the total costs incurred or resources consumed in that period.	**6m** (2 + 2 + 2)
(a)(ii) Partial productivity measures ignore many inputs involved in production. A total productivity measure takes account of all the inputs that are involved in production.	**6m** (3 + 3)
(a)(iii) Tonnes per hectare is a partial productivity measure - it doesn't take into account other inputs, such as labour, fertiliser, etc. Sam's farm may require a lot more of these inputs to produce one tonne of potatoes, so much so that the cost to Sam to produce one tonne of potatoes (including the cost of these extra inputs, along with the land) is actually greater than the cost to Jessica to produce one tonne of potatoes.	**6m** 3 + 3
(b)(i) • Need to protect habitats from damage due to land reclamation, use of pesticides, and removal of hedgerows. • Dangers of reduction in biodiversity as a result of breeding programmes. • Need to maintain the quality of water and soil with increased use of chemical fertilisers. • Need to meet commitments to reduce production of greenhouse gases and ammonia. • May affect farm profit in the short term. • The increase in global demand / abolition of the milk quotas / targets for growth (e.g. in Food Harvest 2020) may put pressure to grow quickly, in a manner that is not sustainable. • Climate change / flooding negatively impacts on Irish agriculture.	**16m** 2 x 8m (4 + 4)
(b)(ii) • Developments in technology are allowing farmers to regularly, easily and more accurately assess the quantity and quality of grass. This allows them to increase the productivity of their land, as well as improving the nutritional quality of their output. • Developments such as genomic technology and sexed semen is helping dairy farmers to improve the productivity of their herd. • Improved farmer skills through greater engagement with research and development bodies, processors and peer groups is improving productivity.	**16m** 2 x 8m (4 + 4)

Marcanna Breise as ucht freagairt trí Ghaeilge

Léiríonn an tábla thíos an méid marcanna breise ba chóir a bhronnadh ar iarrthóirí a ghnóthaíonn níos mó ná 75% d'iomlán na marcanna.

N.B. Ba chóir marcanna de réir an ghnáthráta a bhronnadh ar iarrthóirí nach ngnóthaíonn níos mó ná 75% d'iomlán na marcanna don scrúdú. Ba chóir freisin an marc bónais sin **a shlánú síos**.

Tábla 320 @ 10%
Bain úsáid as an tábla seo i gcás na n-ábhar a bhfuil 320 marc san iomlán ag gabháil leo agus inarb é 10% gnáthráta an bhónais.

Bain úsáid as an ngnáthráta i gcás 240 marc agus faoina bhun sin. Os cionn an mharc sin, féach an tábla thíos.

Bunmharc	Marc Bónais
241 - 243	23
244 - 246	22
247 - 250	21
251 - 253	20
254 - 256	19
257 - 260	18
261 - 263	17
264 - 266	16
267 - 270	15
271 - 273	14
274 - 276	13
277 - 280	12

Bunmharc	Marc Bónais
281 - 283	11
284 - 286	10
287 - 290	9
291 - 293	8
294 - 296	7
297 - 300	6
301 - 303	5
304 - 306	4
307 - 310	3
311 - 313	2
314 - 316	1
317 - 320	0

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