

The effect of stocking rate and prolificacy on profitability of a lowland sheep enterprise

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Introduction

Stocking rate and ewe prolificacy are the key drivers of productivity and profitability on Irish sheep farms

(Diskin and McHugh, 2011)

Objective

To quantify the effect of stocking rate and prolificacy on farm productivity and profitability

Background

Teagasc

e-Profit Monitor Analysis Drystock Farms 2014

Average

7.5 ewes/ ha

1.45 lambs weaned/ewe

11 lambs/ha

€34/ha NP

Top 1/3

9.6 ewes/ ha

1.54 lambs weaned/ewe

15 lambs/ha

€335/ha NP

Irish mid-season lamb production

October



Dec



June



March

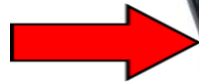
Teagasc lamb production model

Flock net energy



Grass, Silage & Concentrate

Land
Capital
Labour
Animals
Mortalities
Variable costs
Fixed costs



1. Financial

2. Economic

3. Physical



Farm scenarios

Low

20 ha

150 ewes

195 lambs

10 lambs/ha

8 lambs
sold/ha

Medium

20 ha

200 ewes

300 lambs

15 lambs/ha

13 lambs
sold/ha

High

20 ha

240 ewes

432 lambs

22 lambs/ha

19 lambs
sold/ha

Scenario assumptions

Grass growth increased with demand

Grass utilization increased with stocking rate

Lamb mortality increased with prolificacy

Replacement rate increased with stocking rate and prolificacy

Model outputs

Physical performance

Low

7.5 ewes/ha



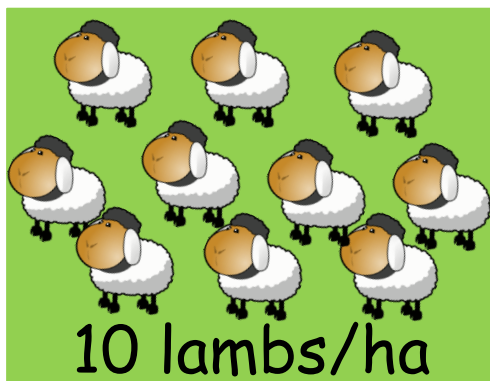
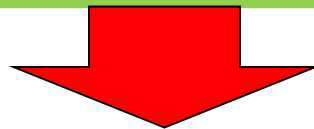
Medium

10 ewes/ha



High

12 ewes/ha



10 lambs/ha



15 lambs/ha



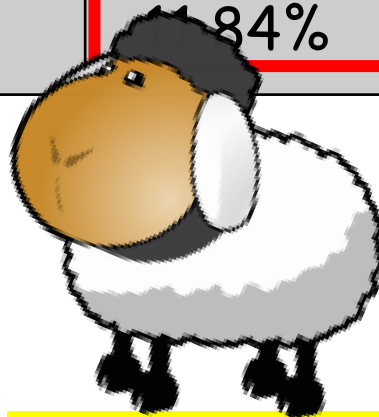
22 lambs/ha

Lamb performance

	Low	Medium	High
ADG pre-weaning (g/d)	299	275	264
ADG post-weaning (g/d)	190	181	166
Lamb mortality	11.84%	13.44%	15.54%



36.1 kg



33.1 kg



31.4 kg

System performance

Low

7.3 tonnes

75 kg N/ha

21 kg/ewe

1.3 kg/lamb

Medium

9.8 tonnes

115 kg N/ha

23 kg/ewe

2.4 kg/lamb

High

12.5 tonnes

150 kg N/ha

26 kg/ewe

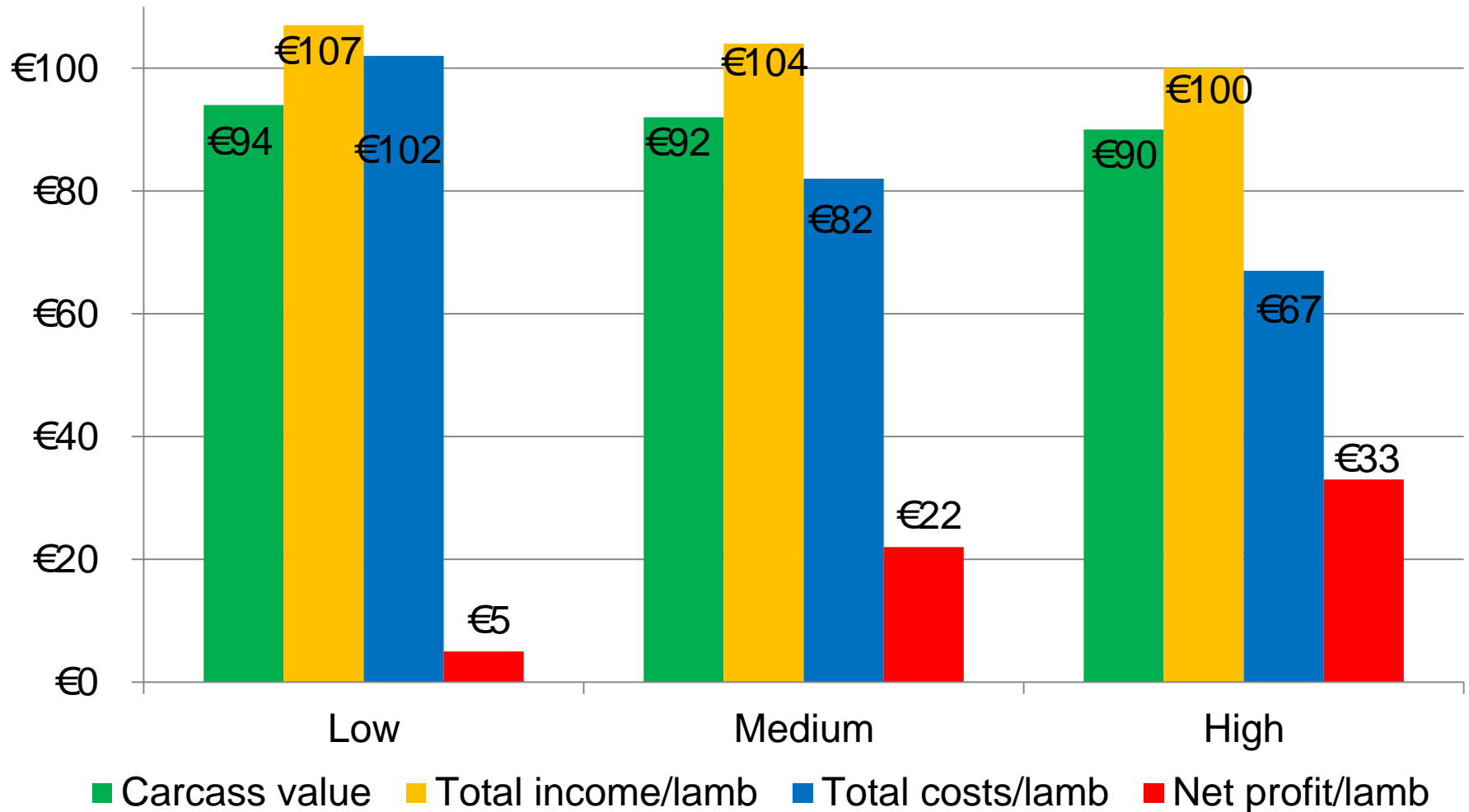
4.3 kg/lamb



Financial performance

	Low	Medium	High
Total income/ha (€)	891	1,346	1,883
Variable costs/ha (€)	575	772	968
Gross margin/ha (€)	316	575	915
Fixed costs/ha (€)	230	243	253
Net profit/ha (€)	45	285	610

Profitability

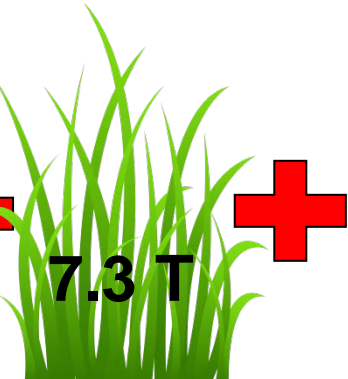


Sensitivity analysis

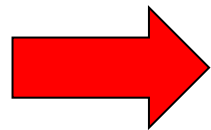
Scenario 1



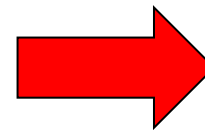
Scenario 2



Low
€45/ha



Medium
€285/ha



High
€610/ha



-€153/ha NP



-€368/ha NP

Summary

- Lambs weaned per hectare and grass growth drive profit
- As the number of lambs produced increases the cost of production per lamb reduces
- Increasing lambs weaned per hectare without increasing grass growth is counter productive

Conclusion

Motivation

"Stocking rate and ewe prolificacy are the key drivers of productivity and profitability on Irish sheep farms"



 The Irish Agriculture and Food Development Authority

and utilization are the key drivers of profit

Thanks for listening



Any questions ???