

## Calculating the minimum amount of income Genovia makes from exporting pears

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### Abstract

This paper attempts to calculate the minimum value of income made per annum by Genovia – the fictitious setting of the popular Princess Diaries franchise. This paper makes reasonable assumptions for Genovia's location and total area, and uses existing statistics to approximate the total amount of pears exported by Genovia. The total income is then calculated using the lowest prices for pears, giving a “worst case scenario” value. This was found to be €11.9 million per year, which is still a handsome value given Genovia's small size.

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### Introduction

The Princess Diaries series follows the story of protagonist Amelia Thermopolis, who at the age of 15 discovers she is the sole remaining heir to the fictitious kingdom of Genovia, following the passing of her estranged father. Amelia, also called Mia, travels to and learns about Genovia, whose most valuable export is its pears. Indeed, Genovia is “famous for them” and is the origin of such delicacies as “pear popcorn”. Genovia is located somewhere between France, Spain and Italy [1]. This paper aims to determine the absolute minimum amount of money this small island can make from the exportation of its famous pears.

### Mapping Genovia

As Genovia is a fictitious island, to obtain useable values for its income from pears, approximations must be made by comparison to existing countries. In order to make comparisons between the income Genovia gets from pears and the income from other European countries, it is requisite to make an assumption for Genovia's total area, as this impacts how many pears can be grown. Pears can grow at a wide range of temperatures but do require full sun exposure. They are also resistant to drought [2].

According to the books, Genovia is a principality between France and Italy. However, according to the films Genovia is located between France and Spain [3]. For the purpose of this study, Genovia is taken to be in the middle of all three countries.

As is visible from figure 1, there exists a number of islands in this region, the centremost being Sardinia. Sardinia is not only the island which best fits the description “between France, Spain and Italy”, but also has the right soil quality and sun exposure for pear growth [4]. As such, for the purpose of this study Genovia will be taken as equivalent to Sardinia in its physical parameters. Note that this does not extend to Sardinia's ecosystems or amount of farmland - comparisons and approximations will be made between the three countries mentioned by name by the franchise (France, Spain, and Italy only). Genovia is part of Europe, and statistics for fruit exports for Europe are applicable to Genovia.



Figure 1) Map depicting islands between France, Spain and Italy. Sardinia is centremost of these islands [5]

### Calculations

On average, pears constitute 8.3% of fruit exports from European countries [3]. Fortunately, the three countries named by the franchise are the largest exporters of fruit, with Italy being the largest

producer of fruit and France being the third largest [4]. As these countries are in proximity to Genovia, it is justified to use their values for fruit export to deduce a value for the amount of fruit exported by Genovia - though in reality Genovia would likely export more pears than all three countries. As this paper looks to find the minimum plausible income, the fruit export values of Genovia will be taken to be the same as for France.

France exports 3.265 billion kg of fruit per annum [4], if 8.3% of this is pears then France exports approximately 271 million kg of pears per year.

France is 643,801 km<sup>2</sup> in area. Sardinia (and therefore Genovia) is 24,090 km<sup>2</sup> in size. This means Genovia is 3.7% the size of France. It is fair then, to assume the amount of pears exported will also be this percentage of France's pear exports, meaning Genovia exports a minimum of approximately 10.1 million kg of pears per year.

Pears are at their lowest price during Spring (between the beginning of the third week of April and the end of the second week of May), and are cheapest in Italy – which is unsurprising given that Italy is the largest exporter of fruit in Europe [6]. The

price for pears during this time can be found in Table 1. The average of these values is €1.18/kg. If prices stayed at this rate every week of the year, the amount of money made by Genovia from Pear exports would be approximately €11.9 million per year.

Date	15/04-21/04	22/04-28/04	29/04-05/05	06/05-12/05
€/kg	1.13	1.17	1.19	1.21

Table 1) Table showing cheapest prices of pears in Europe during their worst season of sale. [5]

### Conclusion

The absolute minimum value Genovia can earn from the export of pears, provided that pear prices remain their lowest throughout the whole of the year, and their export value is equivalent to France, is €11.9 million per year. This is likely to be an underestimate, as Genovia would realistically export more pears than has been assumed. The calculated value would also be made more accurate if there was an actual value for the area which Genovia spans. Nonetheless, for such a supposedly small island, €11.9 million per year is still an impressive amount of income.

### References

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