

## Capital structure and investment on Flower farms in District Varanasi

### ABSTRACT

A study on 120 flower farmers was made in the district Varanasi to analyze the farm structure and investment patterns of the selected farms. ~~Multistage~~ ~~A multistage~~ stratified purposive cum random sampling procedure was adopted for the study. Findings reveal that ~~the~~ overall average cropping intensity on sample farms was found 213.04%. Among ~~the~~ overall cropping pattern of the crops in the study area, ~~the per-cent~~percentage of rose was 8.57 and marigold was found 11.12 ~~per-cent~~percent. Per farm investment on farm, structure was highest on small size group of farms i.e., Rs. 750644.34 followed by marginal size group of farms which found the money value of Rs. 463367.02 respectively showing the direct relation to farm size.

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

**Keywords:** marigold, rose, cropping pattern, investment.

### INTRODUCTION

Floriculture has established itself as a viable business. It has also been recognized for its potential as a profitable agriculture. Floriculture was once only done on tiny farms, but it has since spread to a few larger ones. The National Commission on Agriculture has advised that by the year 2000 A.D., 5 lakh hectares of land be planted in floriculture to increase productivity. Floriculture continues to provide rural residents with employment opportunities. A family of 5 to 6 people can live in a region where flowers are grown. Roses, carnations, gladioli, marigolds, and orchids are among the most highly prized flowers growing here. India is ranked 18th, with a 0.6 percent share of the worldwide floriculture market. It shows growing trend and also reveals a scope further. Although, conventional farming is largely being adopted on every ~~farms~~farm. But flowers are also now being trending to be included in the cropping pattern of the farmers, however large farms on flowers can be seen on very area specific only. Farm size is a major factor in influencing the cropping pattern. A change in cropping pattern implies a change in the proportionate area under different crops. An increase in the area under ~~high value~~high-value ~~crop-crops~~crop-crops is likely to result in an increase in total return even if there is no increase in the yield rate or price provided there is simultaneous decrease in the proportionate area under equally or more valuable crops (*Kadapatti and Bagalkoti*, 2014). Marginal farmers can be more attentive about better utilization of their tinny

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

land holding (Choudhri et al., 2017). Therefore, flower cultivation can be a better option to utilize their every inch of holding as well as can be a return generating on daily basis. Therefore, to analyze the status of flower cultivation and investment pattern on it the study has been performed.

## METHODOLOGY

Multistage stratified purposive cum random sampling procedure has been adopted for the present investigation to select the ultimate unit of the sample. Out of 75 District and 18 Divisions in Uttar Pradesh state, the Varanasi division of Uttar Pradesh was selected purposively to avoid the investigator's operational inconvenience. A list of all 8 blocks of Varanasi district of Uttar Pradesh along with acreage in field flowers cultivation were prepared and arranged in descending order. Out of 8 blocks, two blocks namely **Chiraigaon** and **Arazi Line** having highest area under field flowers were selected purposively for this study. Five villages from each block and a total of 120 respondents were selected for the study at random. Tabular analysis was made to compare different aspects of analysis of costs and returns on different categories of the sample farms. The simplest and the most important measures of average mean and weighted mean were applied. Simple comparisons have been made on the basis of percentage.

## RESULT & DISCUSSION

### The structure of sample farms

This section deals with the size of farms, farm assets structure, irrigational structure, cropping pattern and cropping intensity.

### Average holding size on sample farms

The average size of land holding of marginal and small farms were found 0.88 and 1.61 hectares, respectively with an overall average size of land holding were obtained as 1.15 hectare.

**Table 1 Average size of holding on different size of sample farms**

S.No.	Size groups of farms	No. of Farmers	Net Cultivated land(ha.)	Average size of holding
1	Marginal	75	66.23 (47.64)	0.88
2	Small	45	72.78 (52.36)	1.61

<b>Grand Total</b>	120	139.01 (100.00)	1.15
--------------------	-----	--------------------	------

Formatted: English (United States)

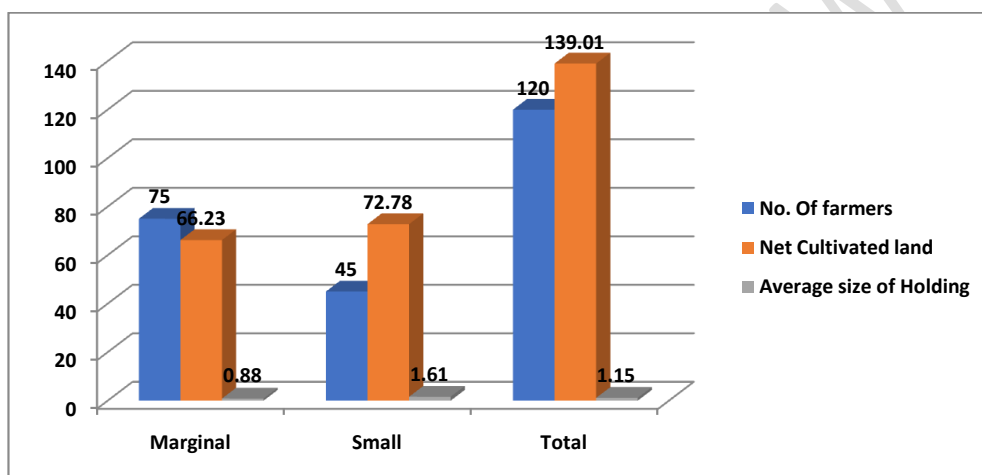
(Figure in parenthesis indicate percentage to the total cost)

Formatted: English (United States)

Distribution of cultivated land owned by different size group of sample farms revealed that 47.64 % of cultivated land was owned by 75.00 of marginal size of farms. Table 1 also revealed that 52.36 % of area (land) were owned by 45 of small size group of farms.

The result is also showing in the Fig. 1.

**Fig 1 Average size of holding on different size of sample farms**



Formatted: English (United States)

### Cropping pattern

Cropping pattern represents the area attached to the various crop during the given period, customarily (conventionally) in a single year. It indicated the yearly sequence and arrangement of crops grown by farmer in a particular area. The cropping patterns follow by the sample farms are presented in Table 2. It reveals that on an average the highest area was covered under in paddy and Wheat 13.42, followed by Marigold 11.17 % in kharif season, rose 9.57 %, maize 4.26 %, Mustard 6.38%, Pea 4.26%, Gram 3.19%, Urd 2.13 % and Vegetable 1.60 %. Rose and Marigold have popular flower occupied 9.57% and 11.17%, 6.58 in kharif and of gross cropped area which was distributed as 1.88 ha. on marginal farms followed by small 3.35 ha. respectively of their total cultivated area.

**Table 2 Cropping Pattern**

S.No.	Crop	Marginal	Small	Overall Average
<b>A.</b>	<b>Kharif</b>	0.88 (46.81)	1.61 (48.06)	1.16 (47.35)
1	Paddy	0.26 (13.83)	0.41 (12.24)	0.33 (13.42)
2	Maize	0.08 (4.26)	0.23 (6.87)	0.15 (6.07)
3	P.Pea	0.08 (4.26)	0.12 (3.58)	0.10 (3.88)
4	Urd	0.04 (2.13)	0.10 (2.99)	0.06 (2.55)
5	Rose	0.18 (9.57)	0.29 (8.66)	0.21 (8.57)
6	Merigold	0.21 (11.17)	0.41 (12.24)	0.27 (11.12)
7	Vegetable	0.03 (1.60)	0.05 (1.49)	0.04 (1.53)
<b>B</b>	<b>Rabi</b>	0.64 (34.04)	1.20 (35.82)	0.85 (34.69)
1	Wheat	0.28 (14.89)	0.41 (12.24)	0.33 (13.42)
2	Mustard	0.12 (6.38)	0.21 (6.27)	0.14 (5.77)
3	Vegetable	0.07 (3.72)	0.09 (2.69)	0.07 (2.65)
4	Gram	0.06 (3.19)	0.14 (4.18)	0.09 (3.67)
5	Lentil	0.03 (1.60)	0.12 (3.58)	0.06 (2.60)
6	Potato	0.08 (4.26)	0.23 (6.87)	0.16 (6.58)
<b>C</b>	<b>Zaid</b>	0.36 (19.15)	0.54 (16.12)	0.44 (17.96)
1	Urd	0.19 (10.11)	0.23 (6.87)	0.21 (8.37)
2	Moong	0.08 (4.26)	0.12 (3.58)	0.10 (3.88)
3	Chari	0.05 (2.66)	0.09 (2.69)	0.07 (2.65)
4	Vegetable	0.04 (2.13)	0.10 (2.99)	0.06 (2.55)
<b>Gross Cropped Area (A+B+C)</b>		<b>1.88</b> <b>(100.00)</b>	<b>3.35</b> <b>(100.00)</b>	<b>2.45</b> <b>(100.00)</b>

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

(Figure in parenthesis indicate percentage)

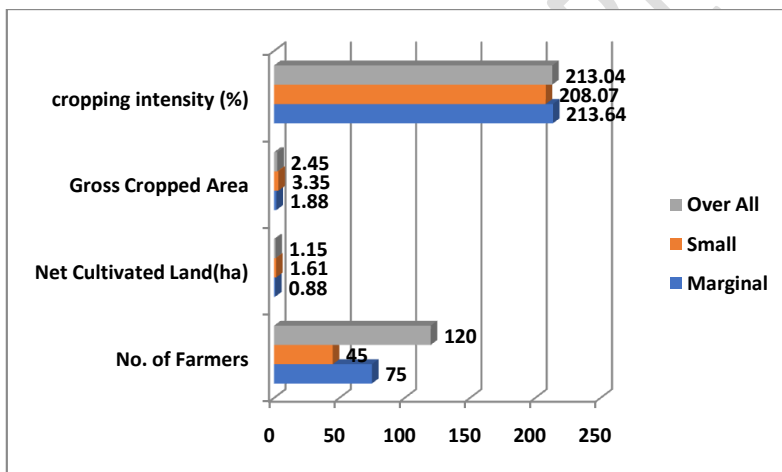
### Cropping intensity

The details of cropping intensity depicted in the Table 3

**Table 3 Cropping intensity of different size group of samples**

S.No.	Size groups of farms	No. of Farmers	Net Cultivated land(ha.)	Gross Cropped Area (ha.)	Cropping Intensity (%)
1	Marginal	75	0.88	1.88	213.64
2	Small	45	1.61	3.35	208.07
<b>Over All</b>		<b>120</b>	<b>1.15</b>	<b>2.45</b>	<b>213.04</b>

**Fig2 Cropping intensity of different size group of samples**



Intensity of cropping refers to the number of crops raised on a field during an agriculture year 2021-22. This can be computed by dividing gross sown area by the net cultivated area. Cropping intensity expressed in %.

$$\text{Cropping intensity} = \frac{\text{Gross sown area}}{\text{Net cultivated area}} \times 100$$

Table 3 reveals that the overall average cropping intensity on sample farms having 213.04% which was found highest on marginal farms 213.64 % followed by small 208.07 %, respectively, also showed in the Fig.2. Cropping intensity was inversely related to size of farms.

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: Font: Not Bold, English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)

Formatted: English (United States)





**The candidate manuscript does not have a robust scientific discussion, I suggest the authors incorporate the suggested paragraphs, in this way, it would improve the scientific quality of the manuscript:**

Formatted: Font color: Auto, Highlight

Formatted: Justified

#### Understanding Capital Structure in Flower Farms, Varanasi:

Formatted: Font: Not Bold, Font color: Auto, Highlight

Agricultural sectors, including flower farming, play a crucial role in the economic development of rural areas (Olivares et al. 2017a; Rodriguez et al. 2015). The study can shed light on the capital structure of flower farms, analyzing the proportion of debt and equity used to finance operations (Pitti et al. 2021; Montenegro Montenegro et al. 2021).

Formatted: Justified

Identifying the optimal capital structure for flower farms can lead to improved financial performance and increased profitability (Olivares et al. 2020). –Understanding the sources of capital can help farmers make informed decisions regarding investment and expansion.

The study can also highlight the challenges farmers face in accessing financial resources, which can inform policymakers and financial institutions about the need for targeted support to boost the agricultural sector (Olivares and Franco, 2015).

#### Impacts on Investment Decisions:

Investigating the investment patterns of flower farms can provide insights into the factors influencing investment decisions, such as technological upgrades, infrastructure development, or expansion to new markets. Understanding these factors can assist farmers in making prudent investment choices (Olivares et al. 2017b).

It can help identify the barriers to investment and entrepreneurship in the flower farming industry, potentially leading to policy recommendations aimed at fostering a conducive business environment.

#### Implications for District Varanasi:

The study's findings can have direct implications for District Varanasi's economy, as it can contribute to the sustainable growth of the flower farming industry, generate employment, and boost income levels.

Formatted: Justified

Improved economic conditions in the region can lead to enhanced living standards, better access to education and healthcare, and overall socio-economic development.

#### Comparing with Socioeconomic Studies in Latin American Territories:

A comparison with tropical agricultural territories in Latin America allows for a broader understanding of agricultural practices and economic dynamics in different regions (Olivares and Hernandez, 2019; Hernandez et al. 2020).

It can reveal similarities and differences in the capital structure, investment patterns, and overall financial performance of flower farms in Varanasi and Latin America (Campos, 2014; Olivares et al. 2022; Olivares, 2023).

The insights drawn from this comparative analysis can provide valuable lessons and best practices that can be adapted and applied in both regions, promoting cross-learning and knowledge exchange (Zingaretti et al. 2016; Hernandez et al. 2018).

#### Contribution to Academic Research:

The study can contribute to the existing body of knowledge on agricultural economics, capital structure, and investment decisions, both in the specific context of flower farms in Varanasi and in a comparative context with Latin American territories.

It can serve as a reference for future research on similar topics, inspiring scholars to explore related issues in different agricultural sectors and geographical regions.

Overall, the study on capital structure and investment in flower farms in District Varanasi, coupled with a comparison with socioeconomic studies in tropical agricultural territories of Latin America, holds immense potential for generating valuable insights, facilitating economic growth, and informing policy decisions for the agricultural sector in both regions.

## **CONCLUSION**

From the study of flower (rose and marigold) growers in district Varanasi it was concluded that, overall average size of land holding was obtained as 1.15 hectare and flower cultivation was found included in the cropping pattern of the farmers for their day-to-day business and livelihood along with other conventional crops. On studying the investment

Formatted: Justified

Formatted: Justified

Formatted: Font: Not Bold

Formatted: Font: Not Bold, Font color: Auto, English (United States)

pattern of the flower farmers, it was concluded that per farm investment showed the direct relationship with size of holding, whereas component wise investment on marginal and small farm did not show any definite trend. Similarly, on per hectare it was found that investment on farm assets at different size group of farms had inverse relationship with holding size.

Formatted: English (United States)

## REFERENCES

Formatted

Amarnath, J.S. and Vendhan, K.T. 2017. An Economic Analysis of Cut Flower Marketing in Tamil Nadu. *Economic Affairs*, 62(4): 621-631.

Formatted

Choudhri, H.P.S.; Singh G.P.; Singh R.; Kushwaha P.; Kumar R., 2017. Study of the Farm Structure and Cropping Pattern and Cropping Intensity, on Maize Growing Sample Farm in Bahraich District of U.P., India. *International Journal of Current Microbiology and Applied Sciences*, 6(9): 2975-7981.

Formatted

Formatted

Formatted

Harisha, B.N. 2017. An Economic Analysis of Floriculture in India. Proceedings of the Sixth Middle East Conference on Global Business, Economics, Finance and Banking (ISBN: 978-1-943579-18-1).

Formatted

Formatted

Hasan, M.K.; Dewan, B.; Afrin, T.; Rahman, M.; Afrina, T.; Beg, T.H.; Islam, S. 2019. Profitability Analysis of Cut Flowers - Based on Rose. *International Journal of Multidisciplinary Research*, 5(10).

Formatted

Formatted

Kadapatti R.G.; Bagalkoti S.T. 2014. Farm Size and Cropping Pattern: A Case Study of Dharwad District in Karnataka State. *International Journal of Science and Research (IJSR)*, 2(10): 2147-2152.

Formatted

Formatted

Shankar U.; Singh G.P.; Ahmad R.; Sengar V.S.; Kishore K.; Chaudhary B. 2019. Study of farm structure, cropping pattern and cropping intensity on Lentil growing sample farms in Lakhimpur (Kheri) district of Uttar Pradesh, India. *Journal of Pharmacognosy and Phytochemistry*, 8(3): 4029-4033.

Formatted

Formatted

Ambish Kumar Verma, B.S. Sachan, Birendra Kumar, Bhartendu Yadav\*, H.P.S. Choudhri, Smriti Yadav and Mandeep Kumar, 2022. Investment Pattern and Returns Capability of Sugarcane Farms U.P., India. *Current Journal of Applied Science and Technology*, 41(23): 21-30.

Formatted: English (United States)

Formatted: Font: Not Bold, Font color: Auto, English (United States)

Formatted: Indent: Hanging: 0.5"

Formatted: English (United States)

Olivares, B., Lobo, D., Cortez, A., Rodríguez, M.F. y Rey, J.C. 2017b. Socio-economic characteristics and methods of agricultural production of indigenous community Kashaama. Anzoátegui, Venezuela. *Rev. Fac. Agron. (LUZ)* 34 (2): 187-215. <https://n9.cl/p2gc5>

Formatted: Font: Not Bold, Font color: Auto, English (United States)

Formatted

Rodríguez, M.F., Olivares, B., Cortez, A., Rey, J.C. y Lobo, D. 2015. Physical Natural Characterization of Indigenous Community Kashaama for Sustainable Land Management. *Acta Nova*. 7 (2): 143-164. <https://n9.cl/hakdx>

Formatted

Pitti, J.; Olivares, B.; Montenegro, E. 2021. The role of agriculture in the Changuinola District: a case of applied economics in Panama. *Tropical and Subtropical Agroecosystems*, 25 - 1, 1 - 11. <http://dx.doi.org/10.56369/tsaes.3815>

Formatted

Montenegro, E., Pitti-Rodríguez, J., Olivares-Campos, B. 2021. Identificación de los principales cultivos de subsistencia del Teribe: un estudio de caso basado en técnicas multivariadas (In Spanish). *Idesia (Arica)*, 39(3), 83-94. <https://dx.doi.org/10.4067/S0718-34292021000300083>

Formatted: Font: Not Bold, Font color: Auto, Spanish (Spain, International Sort)

Field Code Changed

Olivares, B. and Franco, E. 2015. Diagnostico agrosocial de la comunidad indígena de Kashaama: Un estudio empírico en el estado Anzoátegui, Venezuela. *Revista Científica Guillermo de Ockham*, 13 (1): 87-95.

Formatted

Formatted: No underline, Font color: Auto, Spanish (Spain, International Sort)

<https://doi.org/10.21500/22563202.1691>  
 Olivares, B., Pitti, J., Montenegro, E. 2020. Socioeconomic characterization of Bocas del Toro in Panama: an application of multivariate techniques. *Revista Brasileira de Gestao e Desenvolvimento Regional*, 16(3):59-71. <https://doi.org/10.54399/rbgdr.v16i3.5871>

Hernandez, R.; Olivares, B.; Arias, A; Molina, JC., Pereira, Y. 2020. Eco-territorial adaptability of tomato crops for sustainable agricultural production in Carabobo, Venezuela. *Idesia*, 38(2):95-102. <http://dx.doi.org/10.4067/S0718-34292020000200095>

Olivares, B., Hernández, R. Ecoterritorial sectorization for the sustainable agricultural production of potato (*Solanum tuberosum* L.) in Carabobo, Venezuela. *Agricultural Science and Technology*, 2019, 20(2): 339-354. [https://doi.org/10.21930/rcta.vol20\\_num2\\_art:1462](https://doi.org/10.21930/rcta.vol20_num2_art:1462)

Hernández, R; Olivares, B. Arias, A; Molina, JC., Pereira, Y. Zonificación agroclimática del cultivo de maíz para la sostenibilidad de la producción agrícola en Carabobo, Venezuela. *Revista Universitaria de Geografía*. 2018. 27 (2): 139-159. <https://n9.cl/12m83>

Olivares, B., Cortez, A., Parra, R., Lobo, D., Rodríguez, M.F y Rey, J.C 2017a. Evaluation of agricultural vulnerability to drought weather in different locations of Venezuela. *Rev. Fac. Agron. (LUZ)* 34 (1): 103-129. <https://n9.cl/d827w>

Zingaretti, M.L., Olivares, B., Demey Zambrano, J.A. y Demey, J.R. 2016. Typification of agricultural production systems and the perception of climate variability in Anzoátegui, Venezuela. *Revista FAVE - Ciencias Agrarias* 15 (2): 39-50. <https://doi.org/10.14409/fa.v15i2.6587>

Campos, B. 2014. Application of Principal Component Analysis (PCA) in Socio-Environmental Diagnosis. Case: The Campo Alegre Sector, Simón Rodríguez Municipality, Anzoátegui. *Revista Multiciencias*, 14 (4): 364 - 374. <https://www.redalyc.org/articulo.oa?id=90433839011>

Olivares B, Rey JC, Lobo D, Navas-Cortés JA, Gómez JA, Landa BB. 2022. Machine Learning and the New Sustainable Agriculture: Applications in Banana Production Systems of Venezuela. *Agricultural Research Updates*, 42, pp. 133 - 157. Nova Science Publishers, Inc.,

Olivares Campos, B. O. 2023. Banana Production in Venezuela: Novel Solutions to Productivity and Plant Health. Springer Nature. <https://doi.org/10.1007/978-3-031-34475-6>

- Formatted: Spanish (Spain, International)
- Formatted: Spanish (Spain, International)
- Field Code Changed
- Formatted: No underline, Font color: Auto, Spanish (Spain, International Sort)
- Formatted: No underline, Font color: Auto, Portuguese (Brazil)
- Field Code Changed
- Formatted: Hyperlink, Font: (Default) +Body, 11 pt, No underline, Font color: Auto, Portuguese (Brazil)
- Formatted: No underline, Font color: Auto, English (United States)
- Field Code Changed
- Formatted: English (United States)
- Formatted: English (United States)
- Formatted: No underline, Font color: Auto, English (United States)
- Formatted: Font: Italic, No underline, Font color: Auto, English (United States)
- Formatted: No underline, Font color: Auto, English (United States)
- Formatted: English (United States)
- Formatted: English (United States)
- Field Code Changed
- Formatted: No underline, Font color: Auto, Spanish (Spain, International Sort)
- Formatted: Spanish (Spain, International)
- Formatted: Spanish (Spain, International)
- Formatted
- Formatted
- Formatted
- Formatted: Spanish (Spain, International)
- Formatted: Spanish (Spain, International)
- Formatted
- Formatted
- Field Code Changed
- Formatted: English (United States)
- Formatted: English (United States)
- Formatted
- Formatted
- Formatted
- Formatted: English (United States)
- Formatted
- Formatted: Spanish (Spain, International)
- Formatted: Portuguese (Brazil)
- Formatted: Font: Not Bold, Portuguese
- Formatted: Indent: Left: 0", Hanging: 0.5"
- Formatted: Portuguese (Brazil)