

EVALUATION OF VARIOUS N & K FERTILIZER FORMULATIONS APPLIED AS SIDEDRESSING TO TOBACCO, IN SANTA CRUZ DO SUL REGION, RS, BRAZIL

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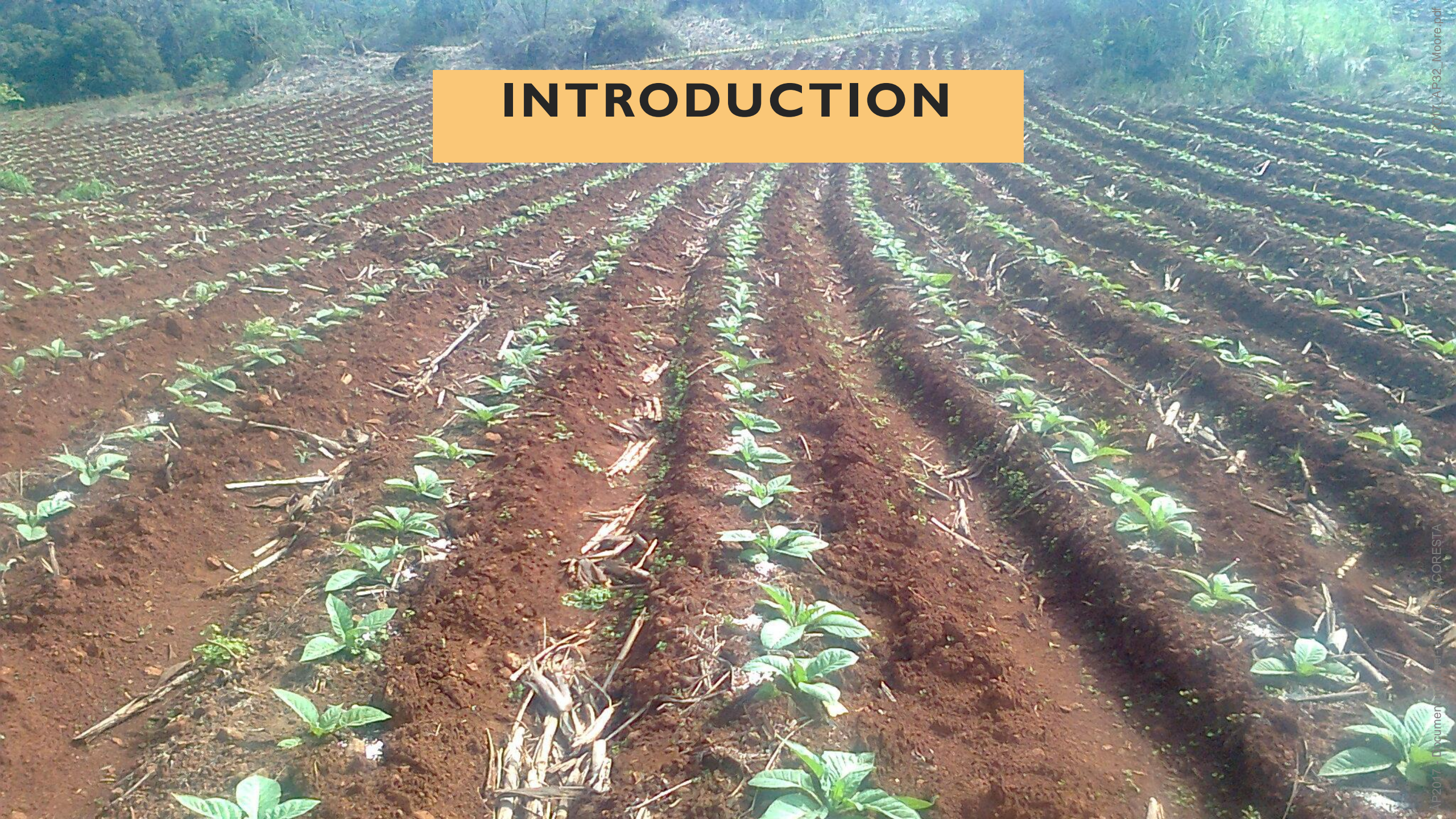
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INTRODUCTION



OBJECTIVE

- **The objective of this research was to evaluate the qualitative and quantitative yield of tobacco (*Nicotiana tabacum* L.) comparing various formulations of nitrogen-potassium fertilizers applied as sidedress treatments**

An aerial photograph of a tobacco plantation. The field is filled with rows of young tobacco plants, which are bright green and have large, broad leaves. The plants are spaced out in a grid pattern across a reddish-brown soil. In the center of the field, a person wearing a dark shirt and blue jeans is standing, looking down at the plants. The overall scene is a well-maintained agricultural field.

MATERIALS AND METHODS

MATERIALS AND METHODS

- Six trials were conducted in distinct flue-cured tobacco production areas.
 - **ANSELMO**
 - **ITAMAR**
 - **MARCELO**
 - **ZAPPAS**
 - **CLOVIS**
 - **VOLMIR**



MATERIALS AND METHODS

- **The experimental design was a randomized complete block design.**
- **4 treatments**
- **6 reps**
- **(4.8m W x 25m L) – 4 rows X 50 plants**
- **16,660 tobacco plants per hectare**

MATERIALS AND METHODS

- **Management and cultural practices followed the recommendations of the companies to which the producers were commercially linked.**

MATERIALS AND METHODS

- **Normal base fertilization was applied at 640 kg/ha of 10-16-10.**



MATERIALS AND METHODS

- **Later, sidedress fertilization which varied between two and three applications according to the necessity of (N) replacement in each area.**



SIDEDRESS APPLICATIONS OF EXPERIMENTAL TREATMENTS

| | 640 kg/ha | | | |
|------------------|------------------------|--|--|--|
| Treatment | Base Fertilizer | | | |
| Trt. 1. | 10-16-10 | | | |
| Trt. 2. | 10-16-10 | | | |
| Trt. 3. | 10-16-10 | | | |
| Trt. 4. | 10-16-10 | | | |

SIDEDRESS APPLICATIONS OF EXPERIMENTAL TREATMENTS

| | 640 kg/ha | 320 kg/ha For Two Years | | |
|----------------|-----------------|-------------------------|--------------------|--|
| Treatment | Base Fertilizer | First Application | Second Application | |
| Trt. 1. | 10-16-10 | 15-0-15 | 15-0-15 | |
| Trt. 2. | 10-16-10 | 15-3-15 | 15-0-15 | |
| Trt. 3. | 10-16-10 | 15-3-15 | 15-3-15 | |
| Trt. 4. | 10-16-10 | 15-3-15 | 14-0-15 | |

15-0-15 contains KNO_3 [potassium nitrate] - Potassium Salitre of Chile

15-3-15 contains NH_4NO_3 [ammonium nitrate] and SOP [sulfate of potash] - NPK (commodities)

14-0-15 contains CaNO_3 [calcium nitrate] and KNO_3 - Yara Liva

SIDEDRESS APPLICATIONS OF EXPERIMENTAL TREATMENTS

| | 640 kg/ha | 320 kg/ha For Two Years | | 160 kg/ha (1 yr) |
|----------------|-----------------|-------------------------|--------------------|---------------------|
| Treatment | Base Fertilizer | First Application | Second Application | Leaching Adjustment |
| Trt. 1. | 10-16-10 | 15-0-15 | 15-0-15 | 15-0-15 |
| Trt. 2. | 10-16-10 | 15-3-15 | 15-0-15 | 15-0-15 |
| Trt. 3. | 10-16-10 | 15-3-15 | 15-3-15 | 15-3-15 |
| Trt. 4. | 10-16-10 | 15-3-15 | 14-0-15 | 14-0-15 |

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**QUANTITY N-P-K TOTAL APPLIED KG/HA.
SANTAGRO - SANTA CRUZ DO SUL, RS, 2016**

| Treatments | Quantity N-P-K total applied kg/ha | | |
|------------|------------------------------------|-------------------------------|------------------|
| | N | P ₂ O ₅ | K ₂ O |
| Trt 1 | 184 | 102 | 184 |
| Trt 2 | 184 | 112 | 184 |
| Trt 3 | 184 | 126 | 184 |
| Trt 4 | 179 | 112 | 184 |

MATERIALS AND METHODS

- **Tobacco was harvested four times providing a harvest for each stalk position and final weighing and classification of the tobacco.**

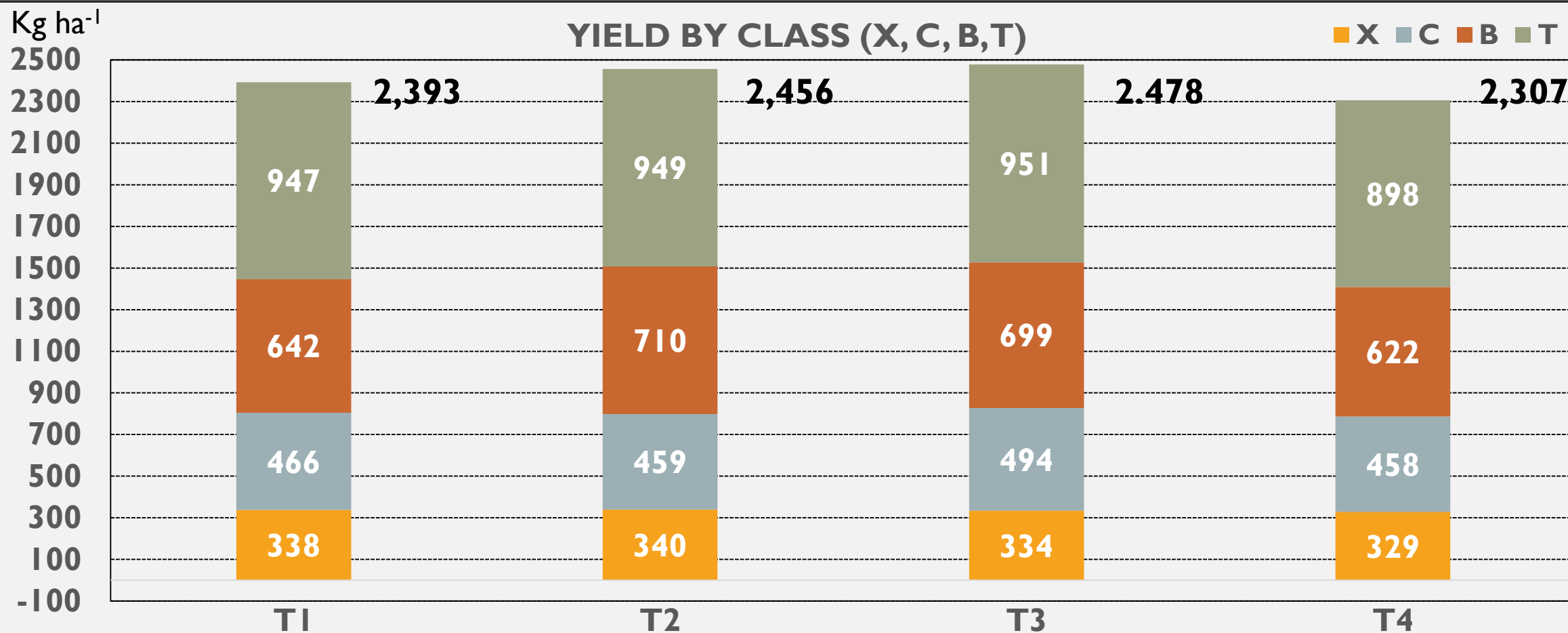
MATERIALS AND METHODS

- **The results were tabulated according to the class, (stalk position and grade) produced.**
- **The qualitative and quantitative yield data were statistically analyzed using the SASM-Agri system for the analysis of variance and the Duncan test at 5%.**

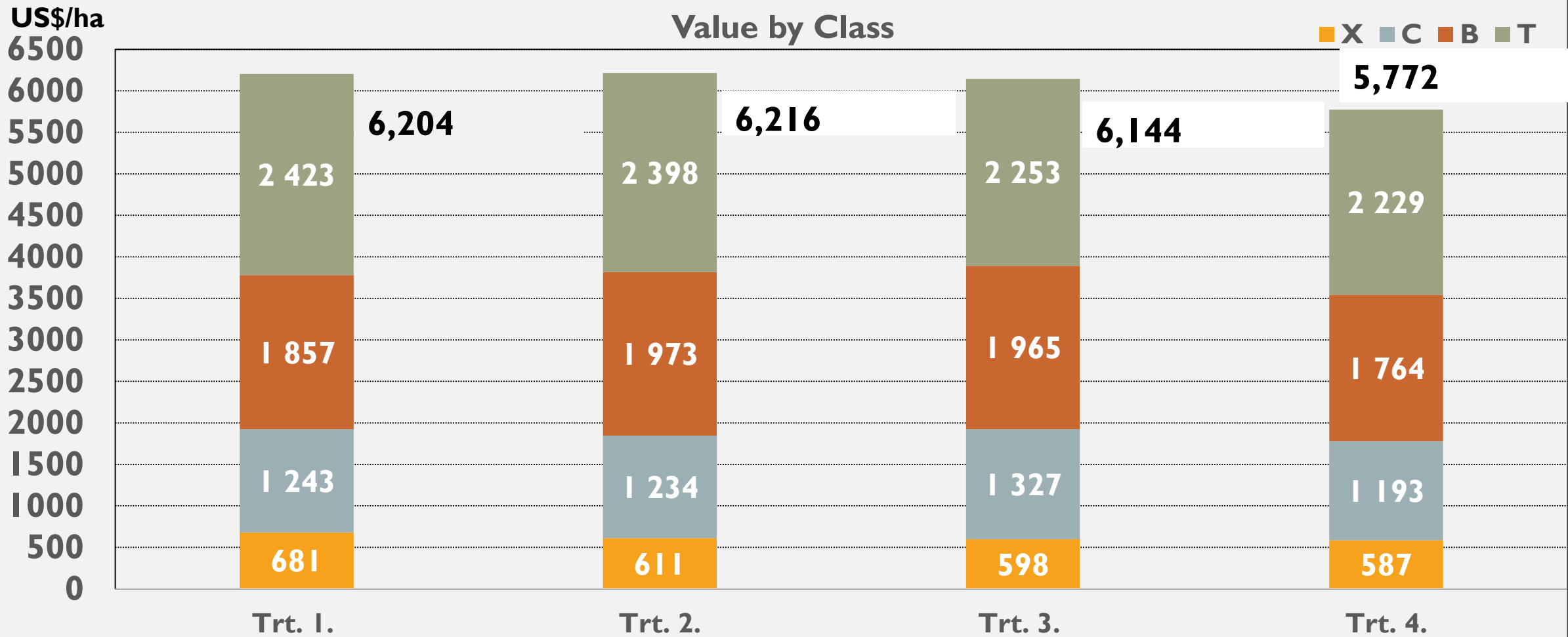
RESULTS



YIELD BY CLASS (X, C, B, T) OBTAINED AFTER THE CLASSIFICATION AND WEIGHING OF THE TREATMENTS TESTED FOR EVALUATION OF SIDEDRESS FERTILIZERS (AVERAGE OF THREE YEARS) - SANTAGRO - SANTA CRUZ DO SUL, RS, 2016.



VALUE BY CLASS OF TOBACCO (X, C, B, T) IN US DOLLARS PER HECTARE, PER TREATMENT FOR EVALUATION OF COVERAGE FERTILIZERS (AVERAGE OF THREE HARVESTS). - SANTAGRO - SANTA CRUZ DO SUL, RS, 2016

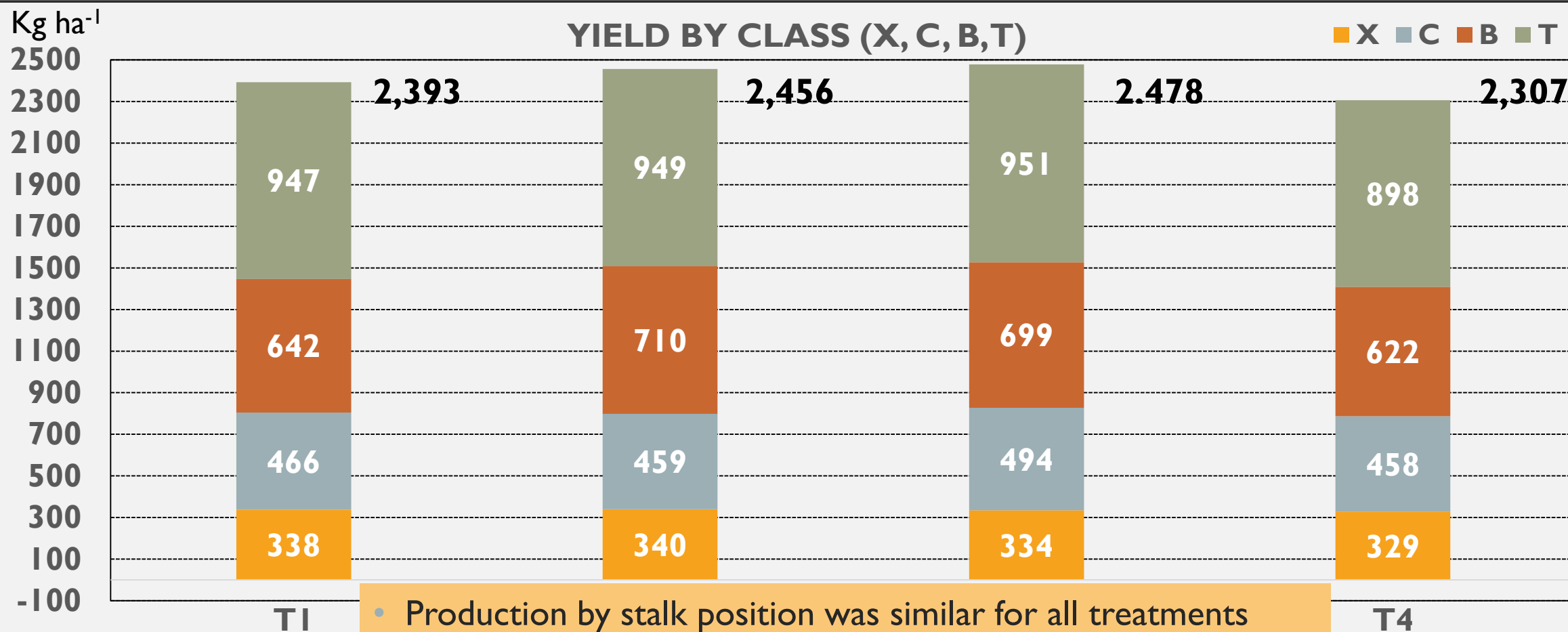


DISCUSSION / CONCLUSIONS

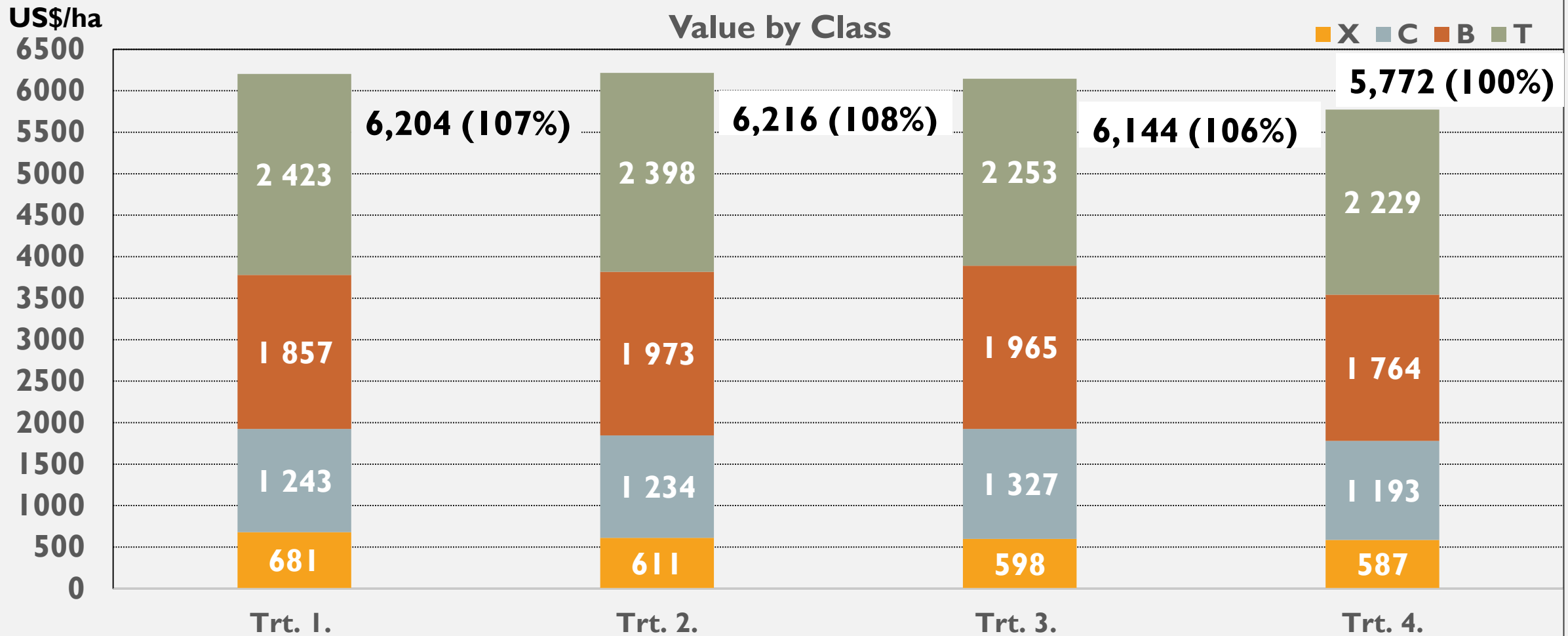
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YIELD BY CLASS (X, C, B, T) OBTAINED AFTER THE CLASSIFICATION AND WEIGHING OF THE TREATMENTS TESTED FOR EVALUATION OF SIDEDRESS FERTILIZERS (AVERAGE OF THREE YEARS) - SANTAGRO - SANTA CRUZ DO SUL, RS, 2016.



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COMPARISON OF GROWER INCOME

| | (US\$/ha) | | | |
|-----------------------|---------------------|--------------|----------------------------|-------------|
| | Total Value per Trt | Trt. 4. | Increased Income to Grower | Percent (%) |
| Trt. 1 – Trt 4 | 6,204 - | 5,772 | = \$ 432 | 107 |
| Trt. 2 – Trt 4 | 6,216 - | 5,772 | = \$ 444 | 108 |
| Trt. 3 – Trt 4 | 6,144 - | 5,772 | = \$ 372 | 106 |
| Trt. 4. | 5,772 | | | 100 |

The bottom line is in the comparison of the value of the treatments indicating the grower profits when KNO_3 is the primary N & K sidedress.

DISCUSSION / CONCLUSIONS

- Data from these trials suggest an advantage for overall quality and value when KNO_3 is the primary source of sidedress fertilizer.

THANK YOU !!

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