Effects of Early Removal of Lower Leaf on Ripening Patterns, Yield and Quality in Tobacco

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Contraf-Nicotex Tobacco (CNT)

Introduction

- Global over-supply of filler styles tobacco.
- Market preference for clean, bodied styles.
- Growers seek practices to meet current demands.
- One such practice is the removal of lower leaf well before topping (referred to as priming).

Why Prime?

Through the practice of priming, growers aim to achieve:

- Higher yields and quality.
- Less filler style lower leaf grades.
- Avoid reaping clashes.

Leaf Styles

Upper bodied style leaf;
- Contribute most to overall yield
- Higher quality
- Greater market demand
- Greatest economic value

Lower filler-style leaf;
- Contributes least to overall yield
- Lower quality grades
- Least economic value

Method

Where	Harare-South
When	2018/19 Season
Agro-Ecological Region	Region II
Altitude	1350m
Mean Temperature	16°C-19°C
Mean Rainfall	750mm-1000mm (November – March)
Actual Rainfall	351 mm 12/12/18 – 05/04/19
Supplementary Irrigation	90 mm

Conditions

Favorable Dry Conditions – slow growth – delayed release of nutrients – producing well grown top leaves – Low incidence of disease

P0

0 leaves primed
120 plants (T66)
(3 subsets x 40 plants)

P5

5 leaves primed
120 plants (T66)
(3 subsets x 40 plants)

P10

10 leaves primed
120 plants (T66)
(3 subsets x 40 plants)

Field Management

Planted	4th - Nov - 18.
Primed	44 days after planting
Topping Height	Bud topped at 19 leaves
Topping Stage	P 0 – 62 days after planting P 5 – 69 days after planting P 10 – 74 days after planting

Fertiliser & Chemical Applications

All Trial Sets Received the Same Treatments

Lime	1000 kg/ha	Prior to ridging
Gypsum	500 kg/ha	Prior to ridging
Basal Fertiliser 6:28:23	550 kg/ha	Prior to planting
Top Dressing (MAP)	8 cup	At ridging
Top Dressing (AN)	8 cup	3 weeks after planting
Top Dressing (AN)	6 cup	6 weeks after planting

TOTAL UNITS OF NPK:
121.5; 206; 126.5 respectively
*More N than usual to assist with the break down of the winter wheat root mass

Reaping & Curing

- One leaf per reaping as ripening occurred (aimed for a 3 day coloring period).

- Once cured, leaf was taken for weighing and classification.

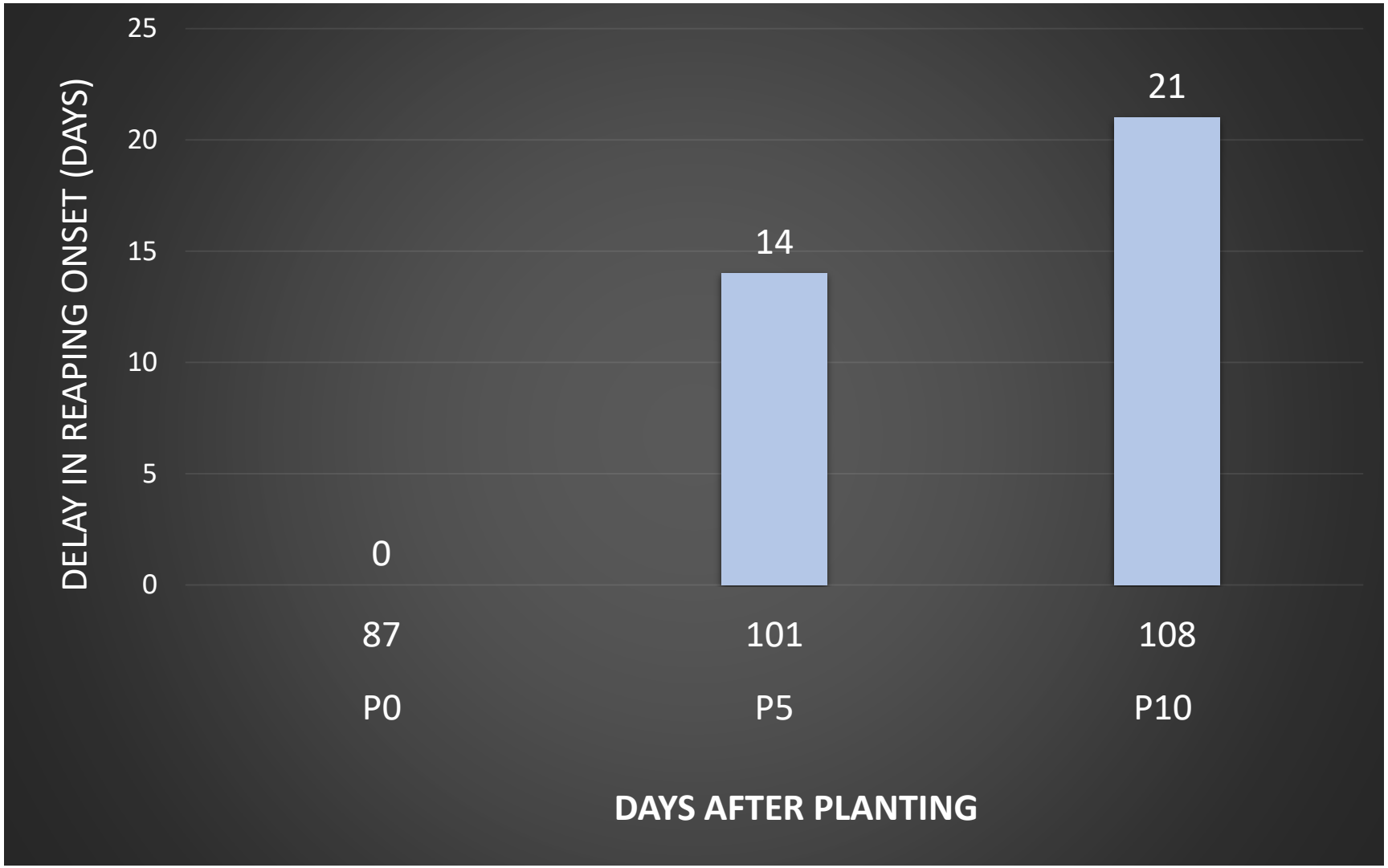
Weighing & Classification

- 30 best cured leaves from each reaping from each trial set.
- Weighed and Classified using quality index.
- Representative sample of upper leaves sent for sugar and nicotine testing.

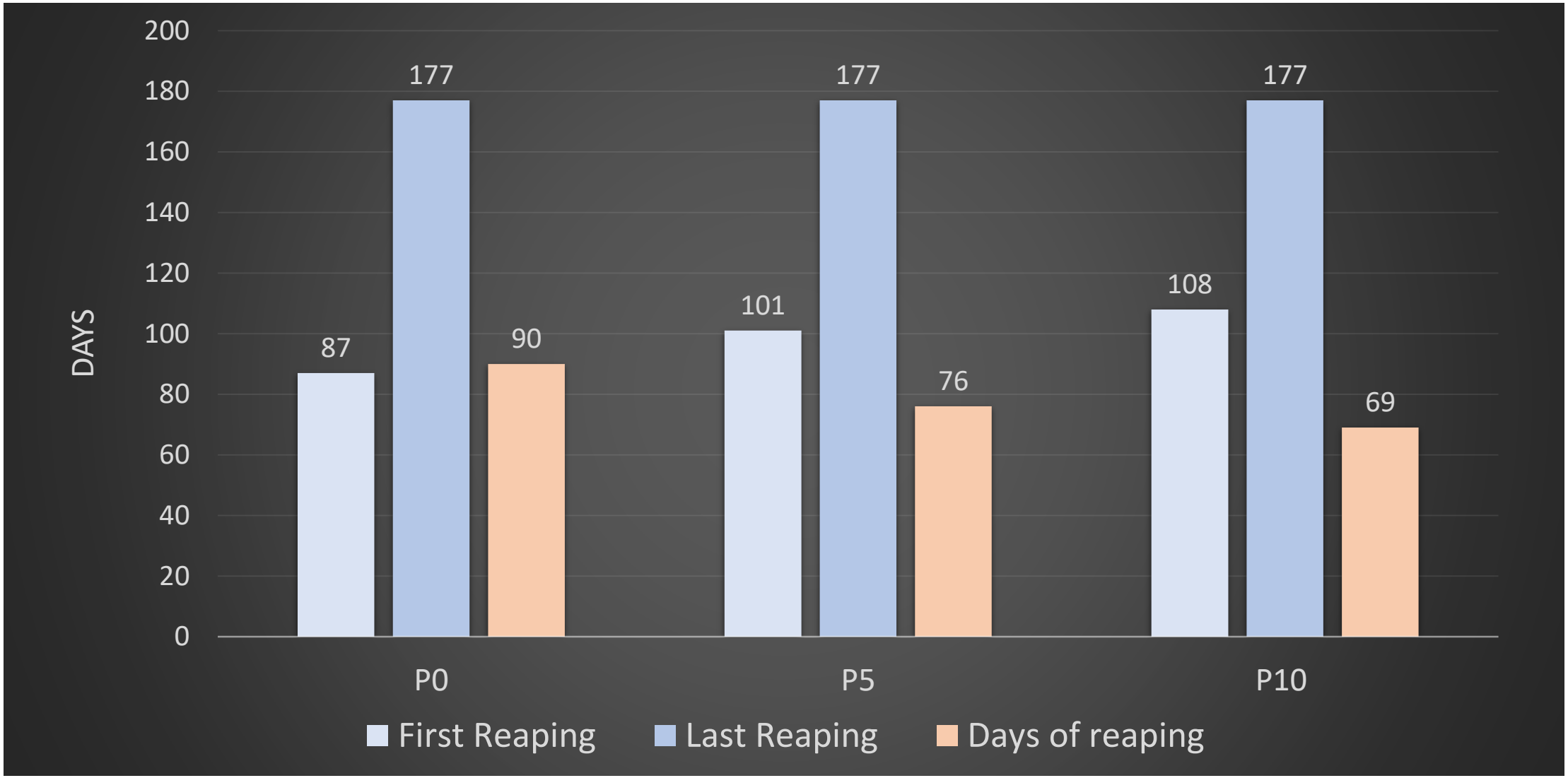
Results

1. Ripening Patterns
2. Yield/Ha
3. Average Price/Kg
4. Quality
5. Value/Ha
6. Sugar & Nicotine Content

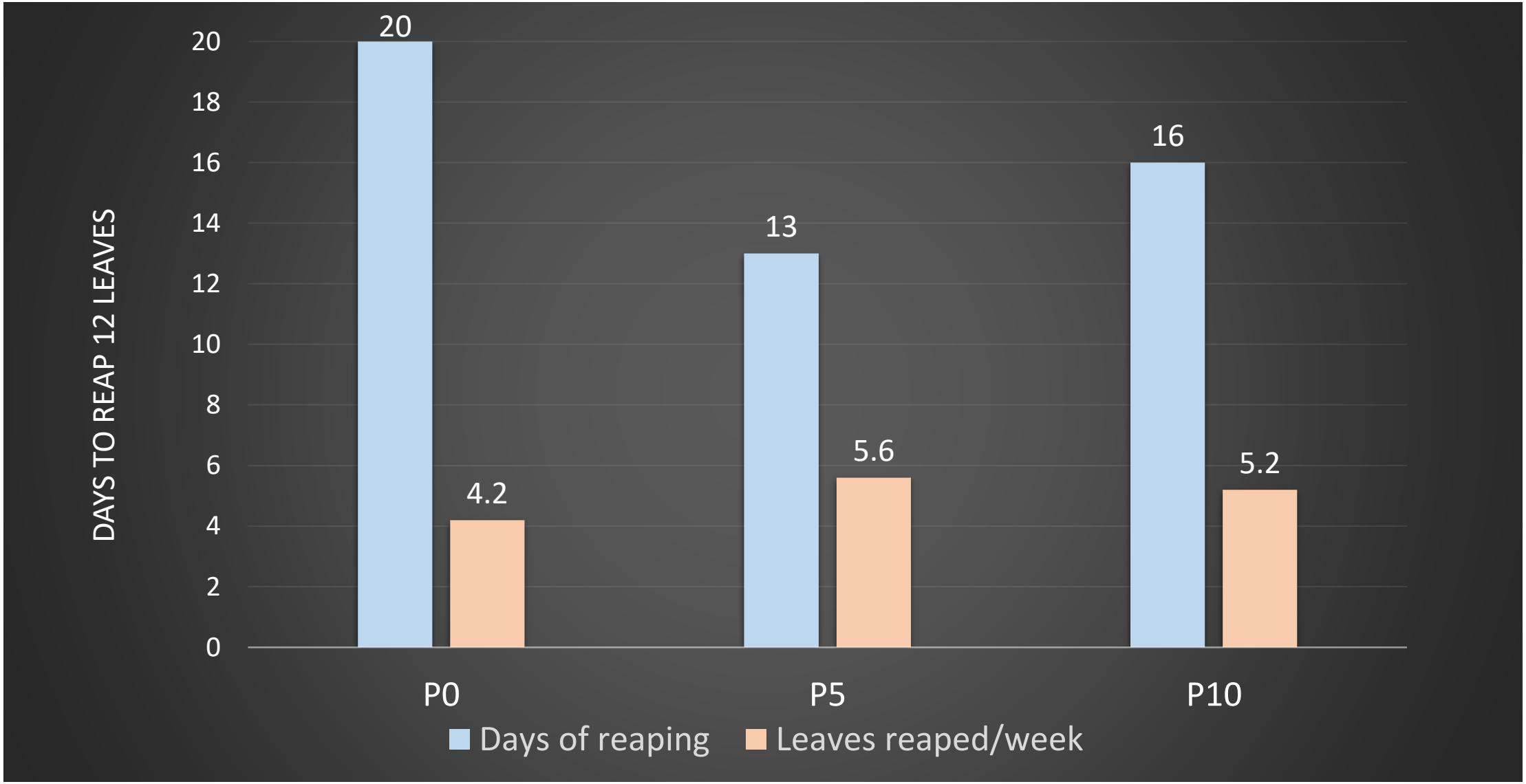
Onset of Reaping



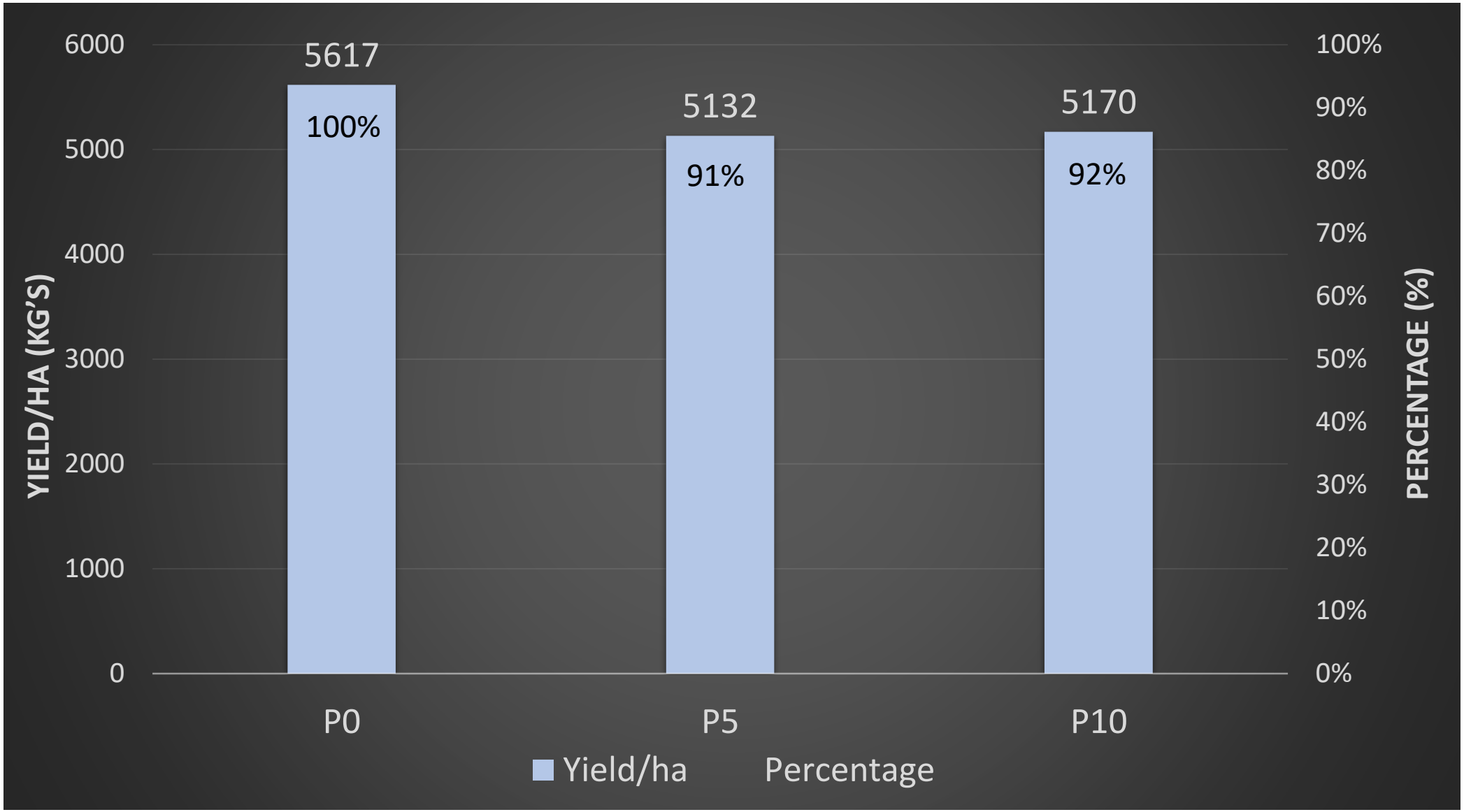
Reaping Schedule



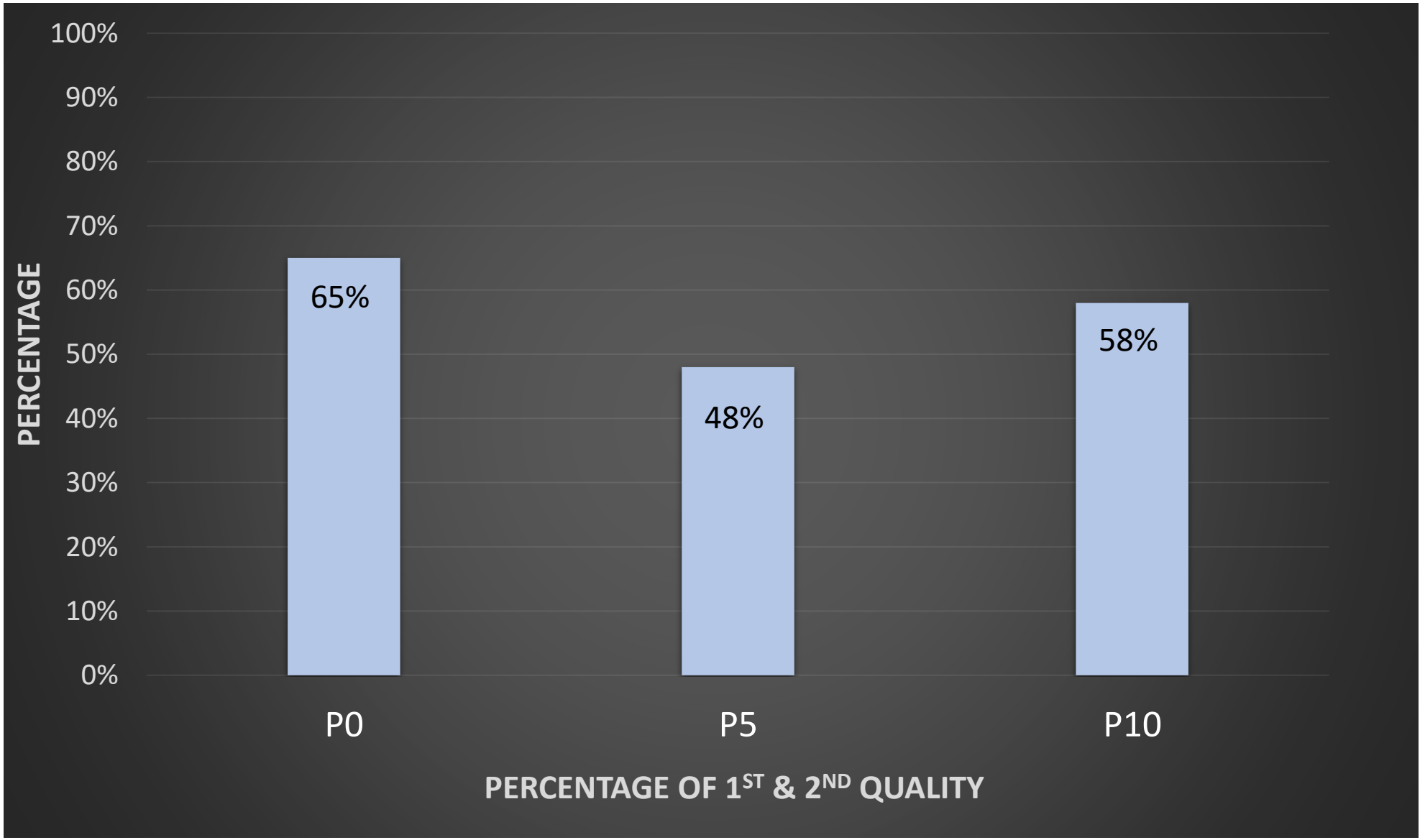
Reaping Flush



Yield/Ha

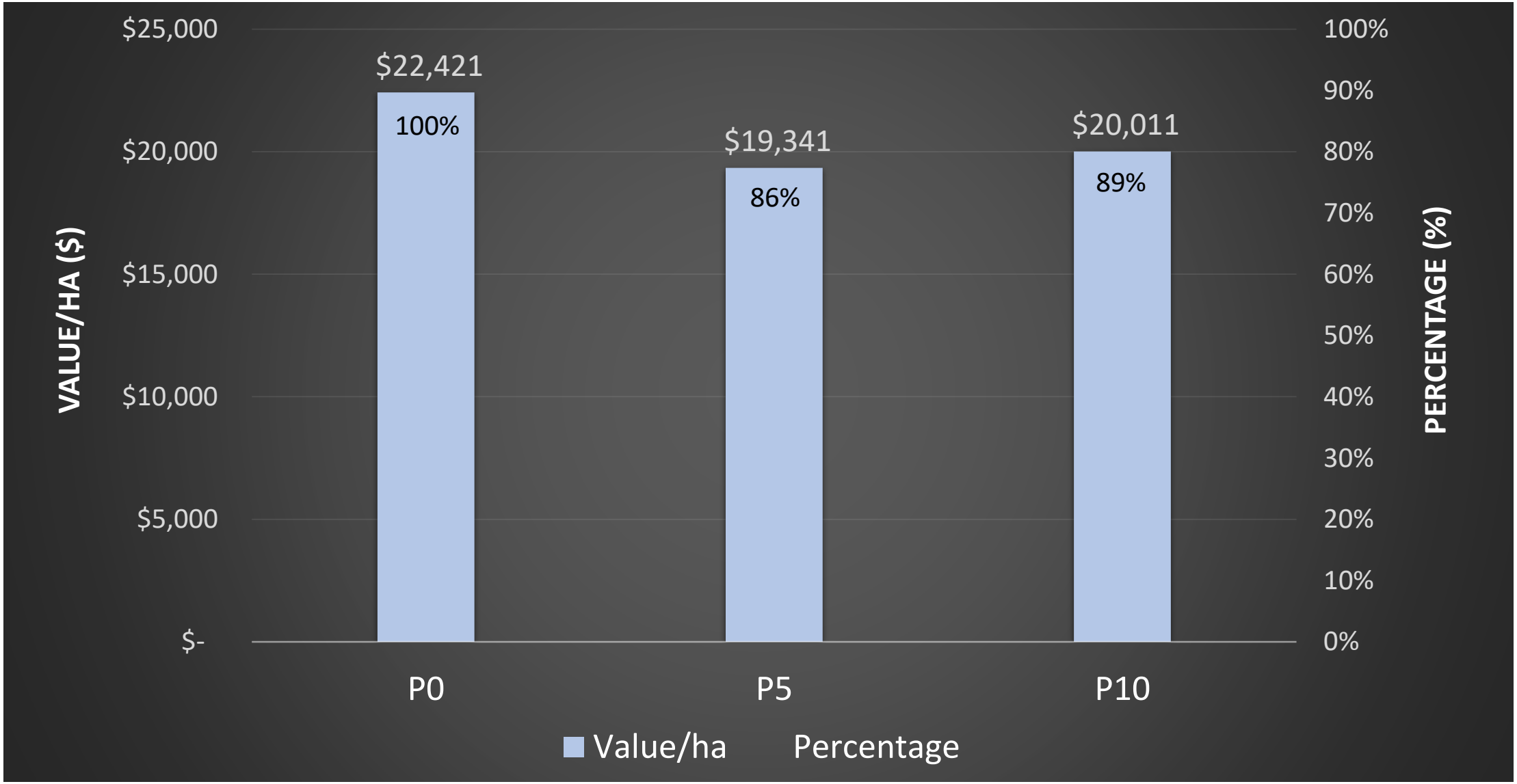


Percentage 1st & 2nd Quality

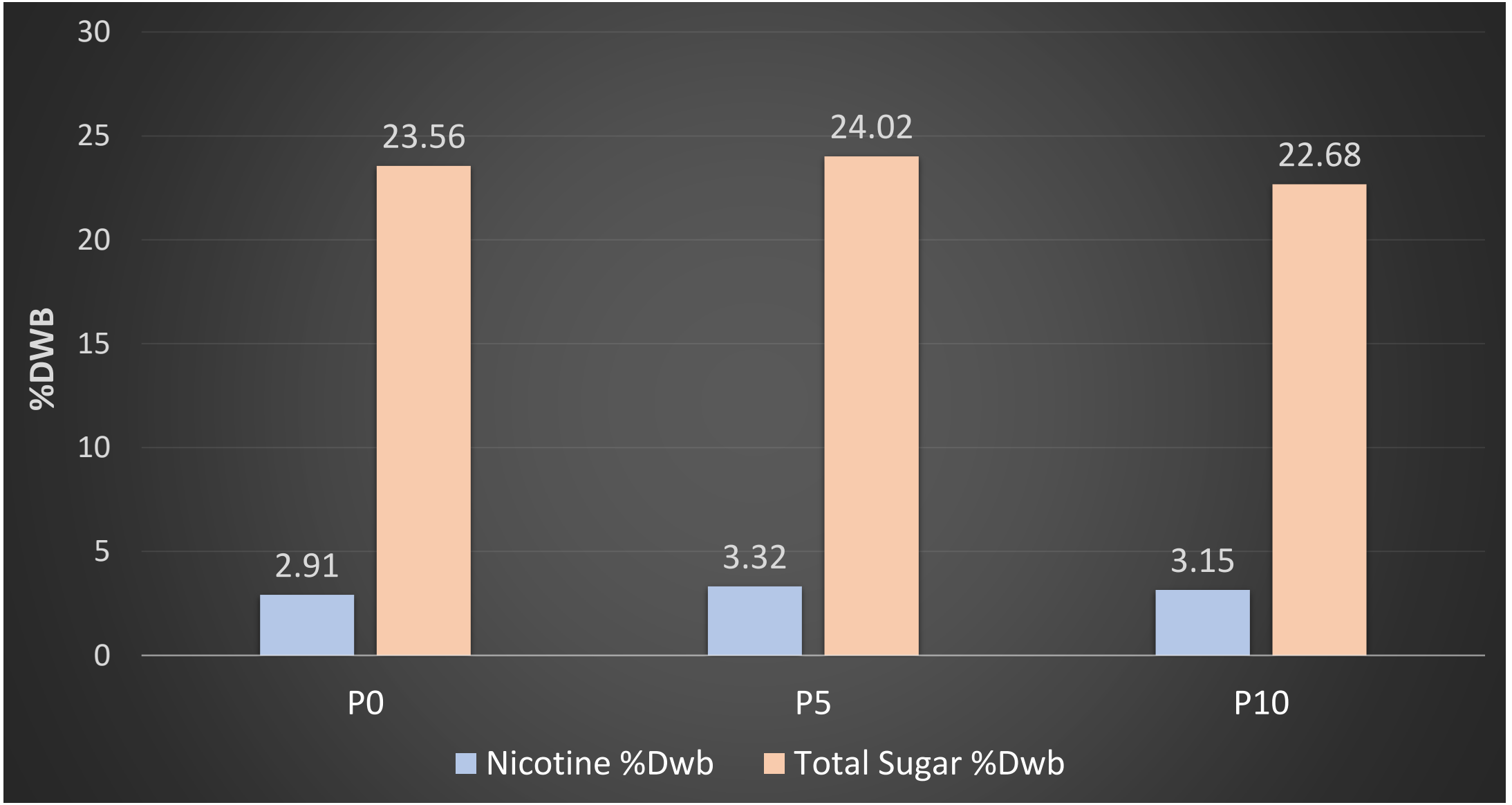


Average Price per Kg

Value per Ha



Sugar & Nicotine Results



Discussion

Reaping Clash Prevention

- Onset of reaping was suitably delayed in both P5 and P10

Risks of Early Priming

- Delayed ripening in upper leaves (most valuable)
- Disease pressures
- Thin leaf tends to be found further up the plant

Income

- P0 produced best quality, yield and overall value

Conclusion

Under ideal conditions for early priming , (slow growth, ample sunshine, thickening of leaves, no need for nutrient top-up) results suggest 5 to 10 leaves early primed delivers:

- Delay of the onset of reaping
- Around a 10% loss in economic value
- Higher risks to achieving optimal returns of upper leaves (most valuable)

This is only the first year of the trial. Intentions to continue the trial for another 2 years.