

COFFEE

Increase vegetative and productive parameters



PLACE

Test location:	Fazenda Cachoeirinha - São João da Boa Vista, São Paulo
Person in charge:	Teixeira Consultoria, IlsaBrasil
Number of thesis:	3
Type of cultivation:	Open field
Technique of distribution:	Fertigation
Period:	09/09/2019 - 30/05/2021
Variety:	Catucai 2 SL (6 years, density: 4385 plants/ha)
Tested products:	ILSADRIP FORTE



OBJECTIVE

To evaluate the efficacy of Gelamin®, fluid hydrolysed gelatin for agricultural use, integrated into the fertigation strategy of conventionally grown Arabica Coffee, on the increase of the vegetative and productive parameters.

TROPICAL CROPS



RESULTS ACHIEVED

After two consecutive years of repeated tests on the same fields and in the same conditions, the results showed that Ilsadrip Forte (100% Gelamin®) improves the vegetative and productive parameters of Arabica Coffee, if used in fertigation and integrated into the traditional strategy, consisting only of mineral fertigation agents. In both production years, the plants in which Ilsadrip Forte was used greatly improved their nutrient uptake efficiency (measured by foliar analyses), the number of pairs of leaves per productive branch and the final yield of coffee beans, which are formed right at the axils of the leaves.

Between the two **ILSA** thesis, the one in which Ilsadrip Forte was used at the highest dosage had the greatest effect on improved nutrient uptake and photosynthetic efficiency, while the sample in which Ilsadrip Forte was used at the lowest dosage, but with the addition of humic acids, had slightly greater vegetative development and final yield.

This therefore proved the beneficial effect of organic nitrogen, organic carbon and amino acids, also mixed with humic acids, on the nutritional management of Arabica Coffee in fertigation, with more profit for the producer, even in conventional agriculture.

TEST PROTOCOL

STAGE	ILSA thesis 01	ILSA thesis 02	Company thesis
From September to May, 2 applications per week	Ilsadrip Forte: 16 kg/ha Humonia*: 17 kg/ha Ammonium nitrate: 785 kg/ha Calcium nitrate: 233 kg/ha Potassium chloride: 360 kg/ha Magnesium sulphate: 150 kg/ha Boric acid: 15 kg/ha MAP: 26 kg/ha	Ilsadrip Forte: 32 kg/ha Ammonium nitrate: 780 kg/ha Calcium nitrate: 233 kg/ha Potassium chloride: 362 kg/ha Magnesium sulphate: 150 kg/ha Boric acid: 15 kg/ha MAP: 24 kg/ha	Ammonium nitrate: 788 kg/ha Calcium nitrate: 233 kg/ha Potassium chloride: 361 kg/ha Magnesium sulphate: 150 kg/ha Boric acid: 15 kg/ha MAP: 34 kg/ha
Units / ha	N= 308, P ₂ O ₅ = 12, K ₂ O= 243, CaO= 42, MgO= 15, SO ₄ = 19, B= 3.00, Zn= 0.05	N= 308, P ₂ O ₅ = 12, K ₂ O= 243, CaO= 42, MgO= 15, SO ₄ = 19, B= 3,03, Zn= 0,07	N= 308, P ₂ O ₅ = 12, K ₂ O= 243, CaO= 42, MgO= 15, SO ₄ = 19, B= 3.06, Zn= 0.02

The quantities indicated are the total quantities used during the growing cycle. The other plant protection treatments were similar for all thesis, as per company practice.

* Humonia: Fertigating agent based on humic and fulvic acids.



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RESULTS ACHIEVED

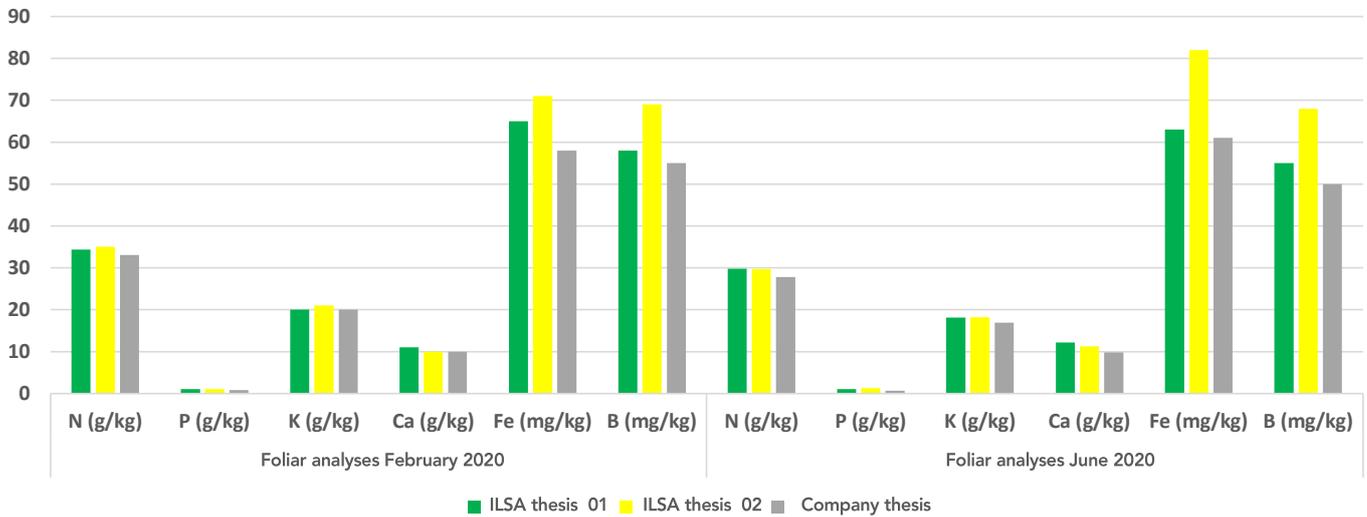
FOLIAR ANALYSES		ILSA thesis 01	ILSA thesis 02	Company thesis	
Test 2019-2020	Foliar analyses February 2020	N (g/kg)	34.4	35.0	33.1
		P (g/kg)	1.02	1.10	0.80
		K (g/kg)	20.0	21.0	20.0
		Ca (g/kg)	11.0	10.0	10.0
		Fe (mg/kg)	65.0	71.0	58.0
		B (mg/kg)	58.0	69.0	55.0
	Foliar analyses June 2020	N (g/kg)	29.8	29.7	27.8
		P (g/kg)	1.10	1.30	0.70
		K (g/kg)	18.1	18.2	16.9
		Ca (g/kg)	12.2	11.3	9.8
		Fe (mg/kg)	63.0	82.0	61.0
		B (mg/kg)	55.0	68.0	50.0

FOLIAR ANALYSES		ILSA thesis 01	ILSA thesis 02	Company thesis	
Test 2020-2021	Foliar analyses February 2021	N (g/kg)	33.2	34.0	33.3
		P (g/kg)	1.30	1.35	1.30
		K (g/kg)	22.0	21.0	21.0
		Ca (g/kg)	12.0	13.0	12.0
		Fe (mg/kg)	80.0	83.0	86.0
		B (mg/kg)	70.0	69.0	68.0
	Foliar analyses June 2021	N (g/kg)	29.8	29.7	27.8
		P (g/kg)	1.28	1.35	0.92
		K (g/kg)	23.0	24.0	20.0
		Ca (g/kg)	13.2	13.0	8.6
		Fe (mg/kg)	86.0	85.0	77.0
		B (mg/kg)	68.0	68.0	67.0

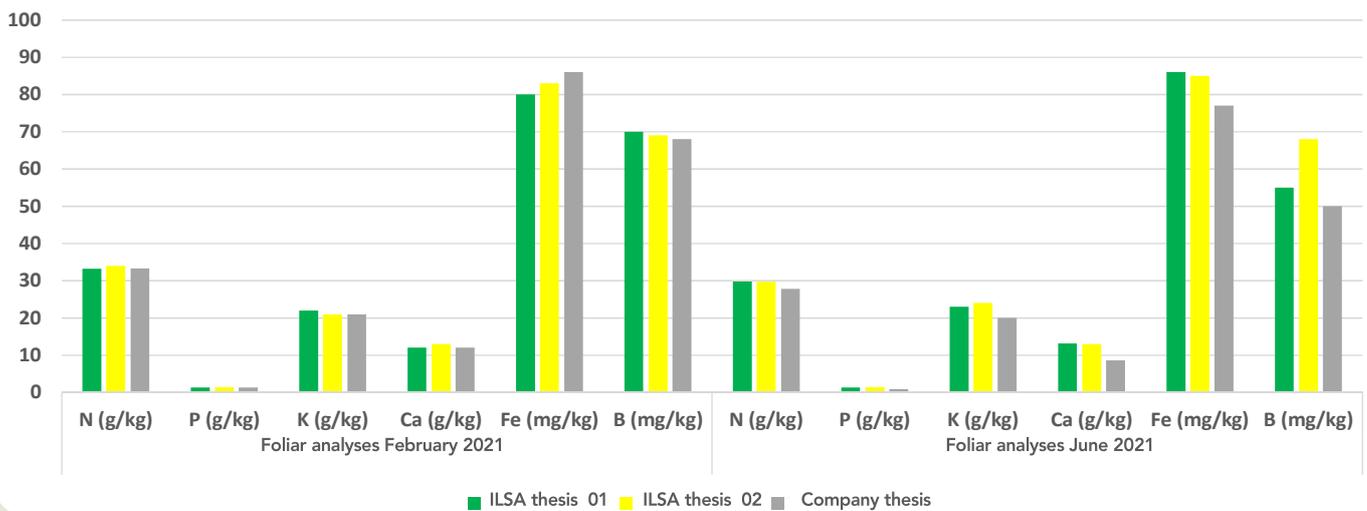


TROPICAL CROPS

Foliar analyses 2020



Foliar analyses 2021



From the data in the tables and graphs, the higher leaf content of macro- and micro-nutrients promoted by the application of Ilsadrip Forte is evident, particularly in the analysis of the month of June, in both years.

AVERAGE number of pairs of leaves per branch (average of 43 plants per sample)

	ILSA thesis 01	ILSA thesis 02	Company thesis
Test 2019/2020	6.90	6.87	5.70
Test 2020/2021	5.49	5.34	4.35

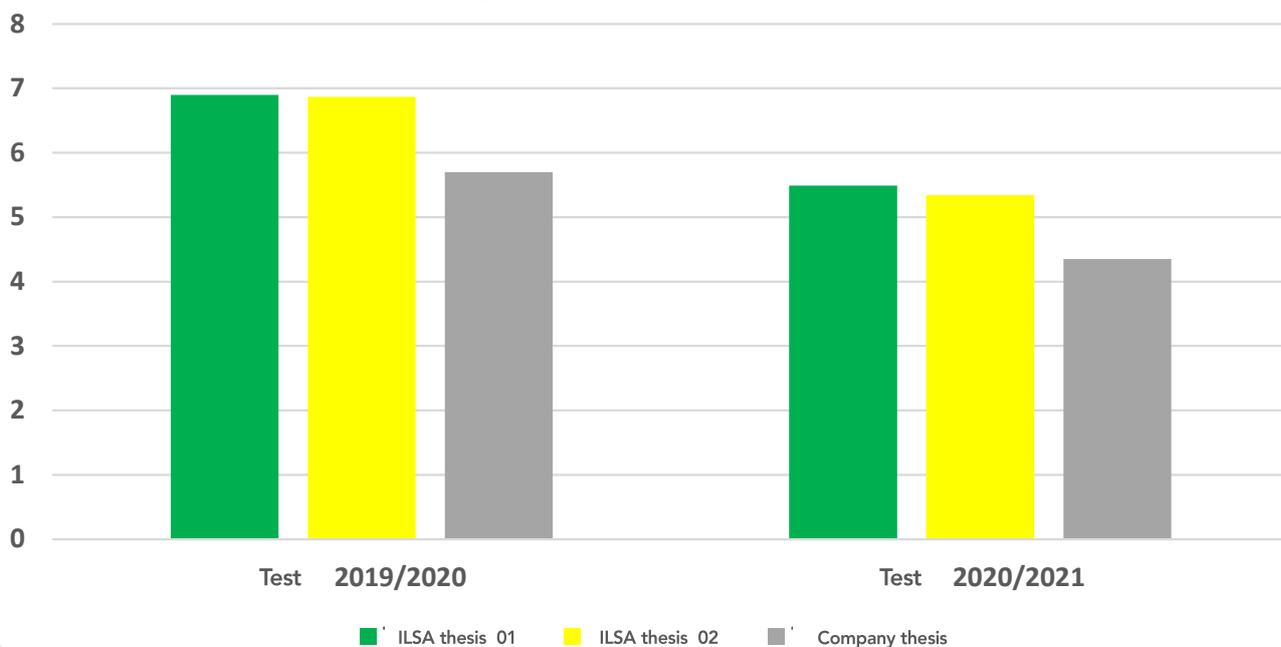


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Average number of pairs of leaves per branch



Both **ILSA** thesis, in the two years, always provided an average of at least one pair of leaves per branch more than the company thesis. In practical terms, this means a greater vegetative development of the branches and an increase in the productive potential, since the flowers, grouped together, appear near the axils of the same leaves and then produce the fruits, as shown in the photo below.



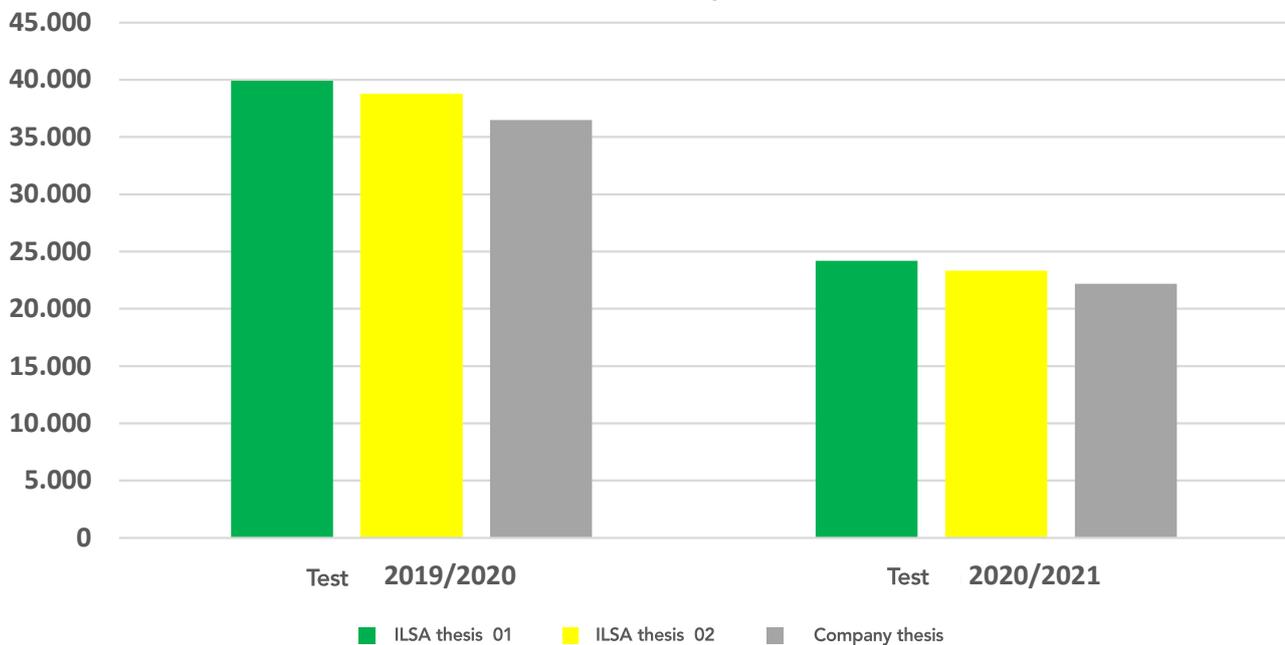


TROPICAL CROPS

FINAL YIELD

		ILSA thesis 01	ILSA thesis 02	Company thesis
Test 2019/2020	Average litres of beans per plant	9.10	8.84	8.32
	Litres of beans per hectare	39,903	38,763	36,483
	Yield in bags per hectare	73.89	71.78	67.56
Test 2020/2021	Average litres of beans per plant	5.52	5.32	5.06
	Litres of beans per hectare	24,205	23,328	22,188
	Yield in bags per hectare	44.82	43.20	41.01

Yield (litres of beans per hectare)



The yield is expressed in volume of processed coffee beans, initially in terms of total yield per hectare (considering 4,385 plants/hectare) and, subsequently, in terms of bags per hectare (each bag of about 540 litres). In both years, even during the second, low-production year (given the high production of the previous year), the two **ILSA** thesis showed an increase in the coffee yield, resulting in more profit for the producer.

