

# ANALYSING $(1/125)5^5$ FRACTIONAL FACTORIAL DESIGNS AND SOME CONSIDERATIONS

Armando CONAGIN<sup>1</sup>  
Décio BARBIN<sup>2</sup>  
Clarice Garcia Borges DEMÉTRIO<sup>2</sup>  
Rafael de Andrade MORAL<sup>2</sup>

- **ABSTRACT:** *In this paper we discuss some aspects of  $(1/125)5^5$  fractional factorial designs and show how to analyze a simulated data set. We present the analysis of variance, the estimated coefficients of the regression model, the determination of maximum response and the economical analysis. We also discuss how to allocate the 25 treatments of  $(1/5)5^3$  fractional factorials in completely randomized, incomplete block or incomplete latin square designs and the 25 treatments of  $(1/25)5^4$  fractional factorials in incomplete block design. We present the R program to perform the analysis in the Appendix B.*
- **KEYWORDS:** *Factorial experiments; high-order interactions; confounding; simulation.*

---

<sup>1</sup> Instituto Agronômico de Campinas – IAC, CEP: 13012-970, Campinas, SP, Brazil.

<sup>2</sup> Universidade de São Paulo – USP, Escola Superior de Agricultura “Luiz de Queiroz” - ESALQ, Departamento de Ciências Exatas, CEP: 13418-900, Piracicaba, SP, Brazil. E-mail: [decio.barbin@usp.br](mailto:decio.barbin@usp.br); [clarice.demetrio@usp.br](mailto:clarice.demetrio@usp.br); [rafael.moral@usp.br](mailto:rafael.moral@usp.br)