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Quality and soil fertility as influenced by different row spacing and intercropping systems in *Rabi* fennel (*Foeniculum vulgare* Mill.)

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ABSTRACT : A field experiment was conducted on loamy sand soil of Agronomy Instructional Farm, Department of Agronomy, Chimanbhai Patel College of Agriculture, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar during the *Rabi* seasons of 2012-13 and 2013-14 to study *Rabi* fennel (*Foeniculum vulgare* Mill.) based intercropping systems under different row spacing. The soil of the experimental plot was low in organic carbon and available nitrogen, medium in available phosphorus and potash. The experiment was laid out in split plot design with three replications. Twenty four treatment combinations comprised of four row spacing *viz.*, S₁ : (45 cm), S₂ : (60 cm), S₃ : (75 cm) and S₄ : (90 cm) and six intercropping systems treatment *viz.*, IC₁ : Fennel sole, IC₂ : Fennel + carrot (1:1), IC₃ : Fennel + cabbage (1:1), IC₄ : Fennel + cauliflower (1:1), IC₅ : Fennel + radish (1:1) and IC₆ : Fennel + vegetable fenugreek (1:1) were evaluated. The highest seed and straw yields were recorded when the crop was sown at 60 cm row spacing while the lowest seed yield was obtained with the narrow row spacing *i.e.*, 45 cm and straw yield was found with wider row spacing *i.e.*, 90 cm. However, volatile oil and protein yields differed significantly. Significantly higher volatile oil and protein yields were recorded under 60 cm row spacing. Seed and straw yields were recorded significantly the highest with fennel sole as compared to intercropping systems. However, volatile oil and protein yields were recorded significantly the highest with sole fennel. Available nitrogen and phosphorus secured significantly higher values with fennel + vegetable fenugreek (1:1).

KEY WORDS : Row spacing, Intercropping systems, Fennel

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